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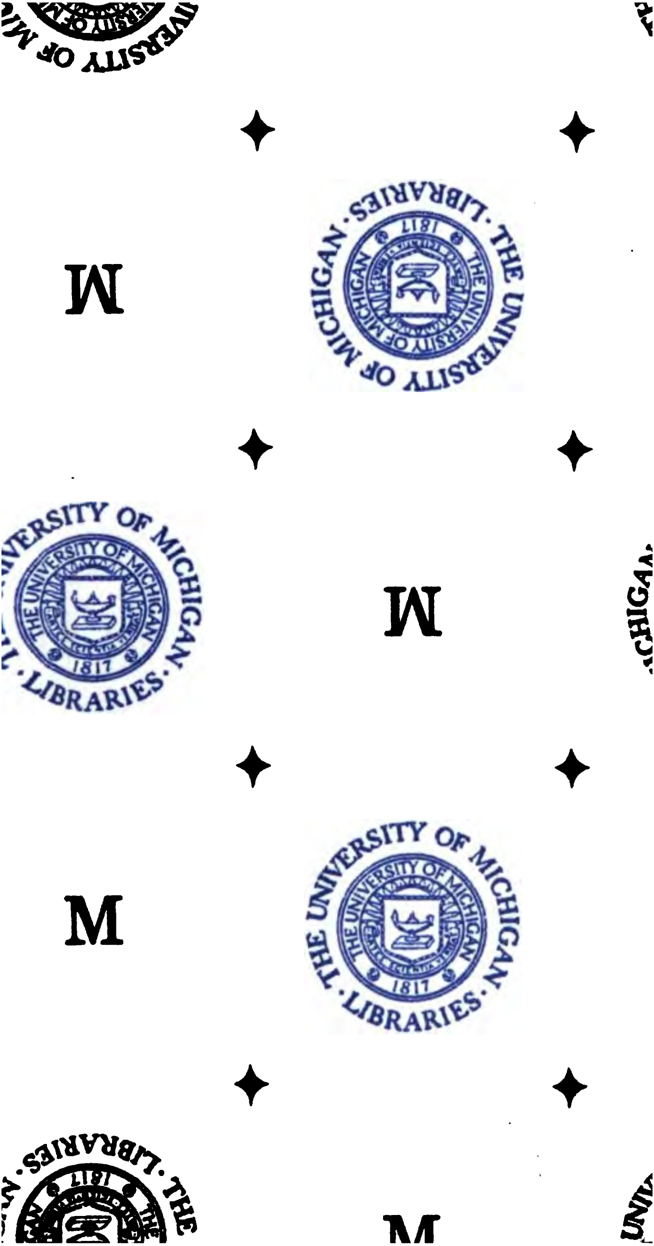

[illegible] General Land Office

GENERAL INSTRUCTIONS

69259

TO HIS

DEPUTIES;

BY THE

SURVEYOR GENERAL of the UNITED STATES,

FOR THE

STATES OF OHIO, INDIANA AND MICHIGAN.

DETROIT:
PRINTED BY W. W. HART, BOOK & JOB PRINTER.

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GENERAL INSTRUCTIONS

TO

DEPUTY SURVEYORS.

Office of the Surveyor General of
Ohio, Indiana and Michigan,

DETROIT, 18

To

Deputy Surveyor:

SIR,—You are to survey in person, or by the assistance of some duly authorized Deputy Surveyor, employed by you under the sanction of this Office, and acting under your immediate supervision and direction, while you are yourself with him, so as to inspect his work, the District described in your contract, dated . 18 conformably to the following printed instructions, so far as they are applicable to the character of the work which you have contracted to perform, excepting so much thereof as is modified or countermanded by manuscript special instructions, hereinafter written.

SYSTEM OF SURVEY.

1. The public Lands of the United States are surveyed in a uniform mode, established by law, by lines run by the cardinal points of the compass; the north and south lines coinciding with the true meridian, and the east and west lines intersecting them at right angles, giving to the tracts thus surveyed the rectangular form.

2. The public lands are laid off and surveyed, primarily, into tracts of six miles square, called *Townships*, containing, each, 23,040 acres. The townships are subdivided into thirty-six tracts, called *Sections*, each of which is one mile square, and contains 640 acres. Any number, or series, of contiguous townships, situated north or south of each other, constitute a *Range*.

3. To obtain and preserve a convenient and uniform mode of numbering the ranges and townships, it is usual, in commencing the survey of an insulated body of public lands, to run, or assume, two *Standard Lines*, as the basis of the surveys to be made therein. One of these standard lines is run due north and south, and is called the *Principal Meridian*, to which the ranges are parallel, and from which they are numbered eastward and westward. The other standard line is run due east and west, and is called the *Base Line*, and from which the townships are numbered northward and southward.

4. To distinguish from each other, the systems or series of surveys thus formed, the several Principal Meridians are designated by progressive numbers. Thus, the Meridian running north from the mouth of the Great Miami river, is called the *First* Principal Meridian; the Meridian running north through the centre of the State of Indiana, is called the *Second* Principal Meridian; that running north from the mouth of the Ohio river through the State of Illinois, is called the *Third* Principal Meridian; that running North from the mouth of the Illinois river, through the States of Illinois and Wisconsin, is called the *Fourth* Principal Meridian; and that run-

ning North from the mouth of the Arkansas river, thro' the States of Missouri and Iowa, is called the *Fifth* Principal Meridian.

5. The surveys in Ohio and Indiana were begun before the present system of surveying the public lands was fully adopted. The only regular base line in Ohio is run due east from a point in the first principal meridian, about one hundred and thirty-three miles north of the beginning of that meridian at the mouth of the Great Miami river. The base line for the surveys in Indiana, crosses the second principal meridian about thirty miles north of the commencement of that meridian, on the Ohio river, and extends west to the Mississippi river, forming, also, a base for the surveys in the State of Illinois. The base line for the surveys in Wisconsin, is the south boundary of that State, established in latitude 42 30 North.

6. The State of Michigan has a base line and principal meridian of its own, separate from those of the adjoining States. The base line begins at a point on Lake St. Clair, 173 links south of the north east corner of private claim No. 222, and extends thence west to Lake Michigan. The principal meridian was run due north from the Maumee river, at Fort Defiance, opposite the mouth of the Auglaize river, in the State of Ohio, but is not adopted as a principal meridian for any other surveys than those of Michigan.

7. Correction lines correct the error that would otherwise arise from the convergency of meridians, and arrest that proceeding from the inaccuracies of measurement. They are run due east and west at stated distances, generally at the end of every tenth township, and each forms a base for the townships north of it.

8. Each range of townships should be made as much over six miles in width, on each base and correction line, as it will fall short of the same width where it closes on to the next correction line north, the excess or deficiency of width being always thrown into the last half

mile, on all the lines closing out to the west boundary of each township.

9. This mode of executing the public surveys, conduces more, perhaps, than any other which could be devised, to the simplicity, regularity, and symmetry of th work; and to the ease and certainty with which any tract may be identified.

10. The public lands are surveyed under the directio of the Surveyor General, by Deputies appointed by himself. He selects for his deputies none other than skilful and experienced practical surveyors, men of goo moral character, in whose integrity and fidelity the fullest confidence can be reposed. Their duties are prescribe in the following code of General Instructions, a copy o which is furnished to every deputy, for his government

11. Each deputy surveyor is required, before he enters upon the duties of his appointment. to take an subscribe an oath or affirmation for the faithful performance thereof; which oath or affirmation is to b filed in the office of the Surveyor General. The following form of this oath or affirmation, or the substanc thereof) will be used:

"I, A—— B—— do solemnly swear (or affirm) tha I will well and faithfully perform the duties of a deput surveyor of the United States Lands, to the best of m skill and ability, and according to the Laws of the United States, and the Instructions of the Surveyor General, as I shall answer to God at the Great Day.

A—— B——

Sworn and subscribed before me, at —— county of —
state of ——, this —— day of —— 18

J—— K——
Justice of Peace.

12. Each deputy surveyor appoints his own chain ca riers, markers, and flag bearers, who must severally tak and subscribe an oath, or affirmation, for the faithfu performance of the trust reposed in them; which oat or affirmation, may be administered by the deputy su

veyor himself, or by a Justice of the Peace, and must be written and subscribed to on some of the pages, immediately after the title page, of the first field book that may be used in describing the surveys which they may assist in making. The following is the oath to be taken by the chainmen :

"I, C—— D—— do solemnly swear (or affirm) that I will well and faithfully perform the duties of chain-carrier, in all surveys of United States Lands in which I shall be employed as such ; and that I will level the chain, in measuring over uneven ground, and plumb the tally-pins, whether sticking or dropping the same ; and that I will report the true distance to all notable objects, and the true length of all lines that I may assist in measuring, and mark correctly the letters and numbers at all corners that I may be required to mark, to the best of my skill and ability. C—— D——

Sworn and subscribed before me, this —— day of——
18 A—— B——
Deputy Surveyor.

13. The oaths of the markers and flag-bearers may be varied to apply to their duties respectively.

OF CONTRACTS.

1. Before entering upon the execution of any surveys which may be allotted to a deputy surveyor, he enters into a written contract with the Surveyor General, in which the surveys to be performed are described, and the period for their completion, and the compensation per mile, fixed ; and wherein the deputy binds himself to a faithful performance of the work, according to the terms of the contract, and pursuant to the laws of the United States, and the instructions of the Surveyor General. To the contract is annexed a bond, executed by the deputy with approved security, conditioned for the faithful performance of the work, in the penalty of double the estimated amount or value of the contract. The place of residence of the deputy, and of each of his sureties,

must be given in the body of the bond, which must b signed by them in presence of at least two subscribin witnesses, whose places of residence must be given o posite their respective signatures. At the end of th contract, there is also the oath before mentioned, whic must be taken and subscribed by the deputy, befor some person authorized to administer oaths, previous t commencing his work. Three copies of each contra and bond are required to be executed; one for the Dep uty, one for the Surveyor General's office, and the othe to be sent, by the Surveyor General, to the Commissioner of the General Land Office.

2. The surveys must be executed, in all cases, by the deputy contracting for the same, in his own person, o under his immediate personal superintendence and direction, excepting random lines, which may be run by an assistant surveyor, as hereinafter provided. All sub-contracts are illegal.

3. In case of failure to comply with the terms of a contract, unless such failure arise from causes satisfactorily proven to be beyond the control of the contractor immediate measures are to be taken to recover the penalty of the bond, agreeably to law. And no deputy surveyor who shall improperly fail to fulfil his engagements will afterwards be employed in the public surveys; and of every such failure the Surveyor General is required to give immediate notice to the Commissioner of the General Land Office.

4. And where any portion of a survey is found or suspected to be erroneous, payment therefor will be suspended until the error is corrected, or the cause of suspicion done away to the full satisfaction of the Surveyo General.

OF SURVEYING INSTRUMENTS.

1. You will provide yourself with *Burt's Improve Solar Compass*, or some other equally good instrument by which, when the sun shines, any survey may be ac

curately and expeditiously made without the use of the magnetic needle, which compass, unless it contains within itself the means of correctly adjusting all its parts, must be compared with, and adjusted by, the standard compass in this office.

2. You will likewise procure a *Surveying Chain*, two poles, or thirty-three feet, in length, and containing fifty links; which is to be compared with and adjusted by the *Standard Chain* in the Surveyor General's Office. It should be made of good iron wire, of such size as to prevent the chain from stretching by use, and yet light enough to be readily straightened in measuring. The handles should be made of iron or brass, at least a fourth of an inch in diameter.

3. You must be provided likewise with the *measure* of the standard chain, which may be made similar to your surveying chain, of smaller wire. And by this your surveying chain must be compared and adjusted, at least every other day, or oftener.

4. You will use eleven tally pins, made of steel, not more than fourteen inches in length, large enough near the point to make them drop perpendicularly, and having a ring at the top in which is fixed a piece of red cloth, or something else of conspicuous color, that they may be more readily seen when stuck in the ground. They should always be counted, by both of the chain men, at the end of every tally, to see that none have been lost.

5. Good marking tools, made especially for that purpose, must be provided and used for marking, neatly and distinctly, all the letters and figures required to be made at corners.

6. You will likewise provide yourself with a good telescope, from 16 to 18 inches in length, with parallel lines correctly set in its principal focus, forming an angle in the field view of not less than 50 minutes, or 5-6 of a degree, to be attached, in a suitable manner, to the sights of your compass, when necessary. Also, two

common targets, and a good tape measure, at least two poles long, correctly divided into links on one side, and into feet, inches and tenths, on the other. The telescope will often be useful in identifying lines and corners across bays and lakes, and, in connexion with the tape line and targets, as hereinafter mentioned, may, in some cases, be advantageously used in measuring inaccessible distances, and in meandering the shores of lakes and rivers which cannot be so easily or correctly meandered in any other way.

7. Your compass and chain must be frequently examined in the field, in order to discover and rectify any error or irregularity which may arise in the use of them.

8. The aberrations of the needle, are a fruitful source of error in surveying. These may arise from a variety of causes. "Local attraction," owing to the presence of iron mineral, is generally assigned by surveyors as the principal cause of the disturbance of the needle. But it is believed that in many instances, the true source of the errors complained of, is to be found in the carelessness or inattention of the surveyor, in the use and management of his compass, or the erroneous measurement of his lines. All these must be constantly and vigilantly guarded against, by every means in your power.

OF THE VARIATION OF THE COMPASS.

There is a certain irregular curve line which passes around the earth towards the north and south poles, called the "*line of no variation.*" On every part of this line the magnetic needle coincides with the true meridian. But on each side of it, the needle declines from the true meridian towards it. This declination is usually called the "*variation of the compass*;" and increases gradually, but irregularly, in receding either eastward or westward from the line of no variation, until it reaches its maximum, beyond which it gradually decreases again to the line of no variation. This line is not stationary; but moves to the eastward for a series o years, and then to the westward through another series of years, but without any regular period, or any known proportion between the *time* of this movement and the *amount* thereof. Hence the variation of the compass, at any place, is continually changing, to an extent corresponding to the change of place in the line of no variation.

The line of no variation, at this time, passes through Lake Huron, and across the eastern end of the Northern Peninsula of Michigan, coinciding very nearly, in some places, with the true meridian; in other places, varying very much from it. East of this irregular line, the needle points to the west of the true meridian, and west of it, to the east of that meridian. Its variation increases in going westward, until, at the mouth of the Montreal River, on the northwestern boundary of the State, a distance of about three hundred miles, it amounts to more than seven degrees. It changes, however, almost continually during the day, and, on some days, as much as half a degree in the course of seven or eight hours. This change is called the *diurnal variation of the needle*, and is much greater in the summer than in the winter months. The north end of the needle reaches its greatest daily eastern declination, between one and two hours after sunrise, and its greatest western declination between one and two hours after noon, and points out the magnetic meridian about sunset. Its daily movements may be better understood by an examination of the following table:

Observations made by Wm. A. Burt, D. S., in latitude 42 *degrees* 42 *minutes north, near Detroit, in July*, 1839.

1839	Thermometer.			Weather.	Weather.	Wind.	Magnetic Variations.		
July.	5½ A M	1 P M	6½ P M	A M	P M		5½ A M	1 P M	6½ P M
13	60	79	62	clear,	light showers,	W. S. W.	1° 42′	1° 28′	1° 42′
14	59	72	67	clear,	flying clouds,	N. W.	1 42	1 26	1 33
15	56	73	64	cloudy,	light showers,	N, W,	1 32	1 28	1 28
16	55	71	66	cloudy,	some cloudy,	West,	1 38	1 28	1 30
17	52	80	69	clear,	clear,	W. N. W.	1 30	1 28	1 30
18	55	85½	83	clear,	clear,	West,	1 41	1 28	1 35
19	56	89	82	clear,	flying clouds,	S. W.	1 40	1 28	1 35
20	63	80	74	clear,	cloudy,	S. S. W.	1 40	1 25	1 35
21	70	82	77	clear,	cloudy,	South,	1 42	1 28	1 30
22	72	86	75	cloudy,	some cloudy,	West,	1 40	1 28	1 35
23	65	88	77	clear,	clear,	East,	1 41	1 23	1 36
24	72	86	77	rain,	clear,	W. S. W,	1 43	1 25	1 35
25	69	83	80	clear,	clear,	N. W.	1 41	1 15	1 32
26	66	88	79	clear,	cloudy,	West,	1 40	1 23	1 35
27	69	80	76	clear,	showery,	West,	1 41	1 30	1 37
28	64	86	80	clear,	clear,	West,	1 42	1 24	1 30
29	66	87	78	cloudy,	clear,	West,	1 41	1 21	1 30
30	69	90	79	clear,	showers,	West,	1 41	1 25	1 33

OF RUNNING AND MARKING LINES.

1. All surveys of every description, where the magnetic variation is not uniform, must be made with Burt's improved solar compass, or some other equally good instrument, operating independently of the needle. All range, township, and section lines, must be run and marked on the true meridian, or at right angles to it, as nearly as practicable, and the courses of these, and of all other lines, must be entered in your field notes, with reference to that meridian. In all cases, where a line or part of a line is run by the needle, the fact that it is so run must be distinctly stated in your notes.

2. All lines which you actually establish, are to be marked as follows: Those trees which your line cuts must have two notches made on each side of them, where the line intersects and leaves them, without any other mark. These are called "sight trees," "line trees," or "station trees." A sufficient number of other trees, standing nearest on either side of your line, to render the same conspicuous, are to be blazed on two sides, diagonally or quartering towards the line; the blazes to approach nearer each other the farther the line passes from the blazed trees, and to be as nearly opposite each other as possible, coinciding with the line, where the trees stand very near it. Great care must be taken to have your lines well marked, so that they may be easily seen and followed. Random lines are not to be blazed, but may have the bushes lopped, and stakes set at every ten chains, and, occasionally, a tree blazed on one side, to enable the surveyor to follow and correct them.

3. Whenever, in running lines, your course may be obstructed by insuperable obstacles, as swamps marshes, lakes, rivers, precipices, or other objects over which you cannot pass, you will take the necessary offsets, or work by traverse, or by trigonometry, in order to pass the obstacle, and to ascertain the exact distance on so much of the line as, by reason of such obstructions, may

not be actually run. By whatever method you pass such inaccessible parts of the lines, the utmost accuracy is necessary, to obtain the true measure thereof.

4. No lines, of whatever description, embraced in your contract, excepting the random lines that may be run by your assistant, (should you employ one under the provisions for that purpose,) hereinafter contained, are permitted, in any case, to be run or surveyed by any person but yourself, or some regularly accredited Deputy Surveyor, duly authorized by the Surveyor General. Nor are letters, numbers, or marks of any kind, to be made by any other person than yourself, or such Deputy, except it be in your presence, and under your immediate and personal direction; in which case you are to inspect such letters, numbers, or marks, to see that they are neatly and correctly made.

OF EXTERIOR TOWNSHIP LINES.

1. The Act of Congress of the 18th of May, 1796, requires that the public lands "shall be divided by north and south lines, run by the true meridian, and by others crossing them at right angles, so as to form townships of six miles square." In laying out and surveying the exterior boundaries of townships, in conformity to this provision of the Act, the greatest possible accuracy must be observed, both in the course and measurement of the lines.

2. Celestial observations to find the variation of the needle, must be made whenever there may be reason to suppose there is any material change therein, and at least as often as once in each mile, whether there be any change or not, which observations must be entered in your field notes.

3. The following is the order and method to be pursued in running exterior township lines: a base line, or a township line assumed as a base, is run due east and west, across the southern boundary of the tract of country to be surveyed. On this line the quarter-section,

section, and township corners are established at the full measure. The western portion of the south boundary of section 31, in each township should, however, be made as much over 40 chains in length, as the western portion of section 6, will fall short of 40 chains in length on the next correction line north, so that each range shall average six miles in width," From each of the township corners on this line, range lines are run due north, the section and quarter-section corners established thereon, and at the end of the sixth mile on each of those lines, temporary township corner posts are set. But, at the end of the sixth mile on the most easterly line, a township corner is established. From this corner, a township line is run due west across the whole district, intersecting the range lines previously run; which, if the work be well done, will be at or near the temporary township corner posts placed at the end of them. Exactly at the points of intersection, whether at the temporary posts or north or south of them, the township corners are to be established. The distances from the points of intersection, to the temporary posts, must be accurately measured and noted, showing whether they are north or south of those posts. On this west line, the intermediate section and quarter-section corners will be established, as the survey of the line advances. The same process will be repeated, in running up due north, from the township corners on this last west line, another series or tier of range lines, to temporary six mile posts; establishing as before, the most easterly one, and from thence extending another due west township line across the whole district, in the manner before directed. The same method is pursued in each successive tier of townships, until the survey of the township lines is completed. On account of the convergency of meridians, however, correction lines should be established at the end of every sixty miles north, on which lines, corners should be established on the same principle as on the base line.

5. Variations from this order and mode of runnin township lines, will sometimes be necessary, to accom modate them to the situation and boundaries of th tract of country to be surveyed, or to connect with pri surveys. Such cases, as they occur, will be provide for in Special Instructions.

6. Whatever excess or deficiency may occur in th measurement of the exterior township lines, is to b carried to the north and west end of those lines. But b a vigilant and faithful attention to duty on the part the skilful and experienced surveyor, those excesses deficiences, except to a trifling extent, will be of rar occurrence. As the interior section lines must neces sarily conform, both in their course and measure, to th township lines; any error committed in the latter wi unavoidably be carried out into the former, and ma mar the beauty and order of the entire sub-divisions the township.

7. It will be seen, then, how very important it is, th the townships be, as nearly as possible, six miles squar that the exterior boundaries be run exactly by the tru meridian; and that the measures thereof be truly an accurately made.

8. North and south lines are termed range lines, an east and west lines township lines. The bearing tre standing on the west side of range, and on the nort side of township lines, are to be entered first in yo field notes.

9. With the Field Notes of exterior township line the surveyor must return a map or diagram of the line run, drawn on a scale of three miles to an inch; o which will be represented the length of each line, miles, chains and links; the variation of the compas b which it is run; and also the water courses, lakes, pra ries, swamps, roads, and such other objects as may b shown on a map.

OF MEASURING LINES.

1. In all measurements, the level or horizontal length is to be taken, and not that which arises from measuring along the surface of the ground, where it happens to be uneven, rolling, or hilly. For this purpose, in ascending or descending hills, the chainmen must let down one end of the chain to the ground, and raise the other end to a level therewith, as nearly as may be; from the end of which a tally pin should be plumbed and let fall, to ascertain the spot for setting it. And where the surface of the ground is very steep, it may be found necessary to shorten the chain to one half its length, or even less, so as to obtain the true horizontal measure.

2. Though your lines be measured by a chain of two poles or perches in length, you are notwithstanding, to keep your reckoning in chains of four perches of one hundred links; and all your entries in your Field Book, and all your calculations, plans, &c., must be made accordingly in four-pole chains, and decimal parts (or hundreths) thereof.

3. In measuring lines, every five chains are called a "tally," because at that distance the last of the ten tally pins with which the forward chainman set-out, has been set. He then cries "tally," which cry is repeated by the other chainman, and each registers the distance, by slipping a thimble, on a belt worn for that purpose, or by some other convenient method. The back chainman then comes up, and having counted, in the presence of his fellow, the tally pins which he has taken up, so that both may be assured that none of the pins have been lost, takes the forward end of the chain, and proceeds to set them. Thus the chainmen alternately change places, each setting the pins that he has taken up, so that one is forward in all the odd and the other in all the even tallies, which contributes to the accuracy of the measurement, facilitates the recollection of the distances to notable objects on the line, and renders a mis-tally almost impossible.

4. You are to pay the strictest attention to the frequent examination and correction of your surveying chain by the standard measure taken with you. The greatest attention must likewise be observed in obtaining, and entering in your Field Book, the exact measure on the lines, to every object which is noted therein. These measurements are very frequently found to be important, after many years, both in tracing the lines and in identifying the corners.

5. The principal source of error in surveying is in the measurement by the chain. And as the interest of the public service, the rights of purchasers of the public lands, as well as your own standing as a surveyor, are at stake, it is enjoined on you, in selecting your Chain-carriers, to have strict regard to their character and fitness for the trust; and to employ those only, in whose moral integrity, capacity, and faithfulness, you can repose the most implicit confidence. You are required to attend vigilantly to the manner in which your chainmen perform their duty, and to cause it to be faithfully and correctly executed; to see, especially, that they carry the chain horizontally on hilly ground; and that all the lines which you may run, be not only correctly measured by them, but the length thereof truly reported to you, for *immediate entry in the Field Book.*

6. In measuring across streams of water, you are to give the width directly across the channels thereof. The distances to the posts which you shall establish on the banks of rivers, lakes, or bayous which are to be meandered, are to be taken with great accuracy.

OF ESTABLISHING AND MARKING CORNERS.

1. The corners of townships, sections quarter sections, and fractions are to be established and marked in the following manner:—

2. On the exterior township lines, corner posts must be erected at the distance of every mile and half mile from the township corner. The mile posts are for the

corners of sections, and the half mile posts for the corners of quarter sections. These posts are always to be made of the most durable wood that can be had, and should be very securely set or driven into the ground and the sides of the posts are to be neatly squared off at the top—the angles of the square to be set in the direction of the cardinal points of the compass. All mile posts, on the township lines, must have as many notches cut on them, on one of the angles thereof, as they are miles distant from the township corner where the line commenced. But the township corner posts shall be notched with six notches on each of the four angles of the squared part. The mile posts on the section lines shall be notched, on the south and east angles of the square, respectively, with as many notches as those posts are miles distant from the south and east boundaries of the township. Wherever a tree may be so situated as to supply the place of a corner post, it is to be blazed on the four sides facing the sections to which it is the corner, and will be notched as the corner posts are, and at least one bearing tree must be taken, in addition thereto, and marked in the usual manner.

3. At all posts thus established for meander section or township corners, there shall be cut with a marking iron, on a bearing tree or some other tree, within each section, and as near as may be to the corner thereof, the number of such section; and over it the letter T, with the number of the township, and annexed thereto, the letter N or S as the township may be north or south of the base line; and above this, the letter R, with the number of the range, and annexed thereto, the letter E or W, as the range may lay east or west of the principal meridian; thus:

R 15 W
T 53 N
36

4. The letters and numbers thus marked must be neatly and very distinctly cut into the wood of such

tree with a good marking tool, the bark thereof having been first hewn or peeled off from a spot on the side facing the corner, large enough for that purpose, unless the tree be a beach, in which case its bark, if smooth, may remain on.

5. But at the quarter-section corners there are no numbers to be made ; the post is to be flattened on two opposite sides, and thus marked : "1-4 S," to indicate that it is a quarter section post ; and the nearest adjoining tree on each side of the sectional line, must be similarly marked.

6. The place of all corner posts, of whatever description, which may be established, are to be perpetuated in the following manner, viz : from each post the courses shall be taken, and the distances measured, to two or more adjacent trees, in opposite directions as nearly as may be ; which trees are called "Bearing trees," and shall be blazed near the ground, with a large blaze facing towards the post, and have one notch neatly and plainly made with an ax, square across, and a little below the middle of the blaze. On each bearing tree the letters B T to denote the fact of its being a bearing tree, or, in case of re-surveys, the letters N B T to denote the fact of its being a new bearing tree, must be distinctly cut into the wood, in the blaze, a little sbove the notch. At all township corners, and at all section corners on range, or township lines, four bearing trees are to be marked in this manner, one within each of the adjoining sections.

7. Wherever the section or township lines intersect lakes, streams of water, or islands, which are to be meandered, posts are likewise to be established on the margin or banks thereof, at the points where the lines intersect or leave them. These posts are to be flattened on the two sides, co-inciding with the lines on which they are set ; and on each of these sides is to be marked, the number of the section which it faces.

8. Wherever bearing trees cannot be had, quadran-

ular mounds of earth or stone are to be raised around the corner posts, the four angles of which must coincide with the cardinal points of the compass.

9. Mounds at township corners are to have a base of five feet, and a top of two feet in diameter, and a height of three feet. At section, quarter section, and meander corners, they are to have a base of four feet, a top of one and a half feet, and a height of two and a half feet.

10. When mounds are made of earth, the place from which it is taken is called the "*Pit*," the centre of which must in all cases, where practicable, be made at a uniform distance, and in a uniform direction from the centre of the mound, viz: At township corners there are to be two pits, one ten links due north, and the other ten links due south; at section corners, one pit, eight links due south; at quarter section corners, one pit eight links due east; and at meander corners, one pit directly on the line, eight links farther from the water than the mound. Whenever the pits are not made as here directed, the course and distance to each must be given in your field book. The mounds are to be neatly covered with sod, placed grass side up, so that the grass may be kept alive, in all cases where sod can be found.

11. The posts established in mounds must be squared, and show above the top of the mound about ten or twelve inches, and, on each side of the square, must be marked the number of the section towards which it faces, and above this, on two opposite sides, at all section corners on township and range lines, there must be marked the appropriate letters and numbers to indicate the township and range.

12. When a section or quarter section happens at a point for establishing a meander corner, the posts and trees are to be marked with the appropriate letters and numbers for such section or quarter section corner.

13. Whenever the proper place for establishing a corner is inaccessible, unless it be in a river or body of water which is to be meandered, you are to establish a

witness corner, as near thereto as practicable, and either due north, south, east, or west of it. Such corner is to be constructed in all respects like the one for which it stands as a witness, with the addition of the letters W C and the number of links from the true corner, immediately over the usual marks.

OF SUBDIVIDING TOWNSHIPS.

1. Each Township is laid off and surveyed into thirty-six sections of one mile square, by lines running due north and south, crossed by others running due east and west. The sections are known and designated by progressive numbers, beginning at the north-east corner of the township, and numbering westward and eastward, alternately, as shown in the following diagram:

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

2. Each side of a section must be made one mile in measure by the chain. Quarter section corners are to be established at every half mile, except in closing a section, when the closing line varies from eighty chains or one mile; in which case you are to place the quarter section corner equidistant, or at the average distance from the corners of the section. But in running out the last section lines, to the north and west boundaries of the township, the quarter section corners are to be established at the distance of forty chains from the last section corner, and the excess or deficiency of measure (if any) carried out into the last half mile, and cast upon the north and west sides of the township, as required by law.

3. You will begin on the east boundary of the township, at the corner of sections 13 and 24, and run and measure a random line west, or parallel to the south boundary, to the west boundary of the township, and note your intersection, whether at, or north, or south of the corner of sections 18 and 19, and if not at that corner, how far from it. On this random line you will

set temporary section and quarter section posts; and also set stakes, or make some other marks, at all the even tallies, or outs, between those posts. From the corner of sections 18 and 19, on the west boundary, you will then return on the true line, straight towards the corner where you commenced the random, blazing and marking that line, and verifying its course by means of off-sets from the posts and stakes set, or other marks made, on the random line, and mark and establish the proper section and quarter section corners thereon.

4. From the corner of sections 13, 14, 23 and 24, run and measure a random line south, or parallel to the east boundary, to the south boundary of the township, and note the intersections thereof, whether at, east or west of the corner of sections 35 and 36, and if not at that corner, how far from it. On this random line, as it is run, you will set temporary section and quarter section posts, and make other marks for the even tallies, or outs, as directed on the random line through the middle of the township. From the corner of sections 35 and 36, on the south boundary, you will return on the true or direct line, blazing and marking that line, and establishing the quarter section and section corners thereon, at their average distances, or proportionate parts of the whole distance, to the corner of sections 13, 14, 23 and 24, on the middle line.

You will also run and measure a random line east from the corner of sections 25, 26, 35 and 36, to the east boundary of the township, and note its intersection, whether at, or north, or south of the section corner, and how far from it, and correct, mark and establish this line back to the corner from which you set out, in the manner before directed for the correction of random lines, establishing the quarter section corner thereon equidistant between the section corners. Proceed in like manner with each east and west section line, as you progress north, until you close at the corner of sections 13, 14, 23 and 24.

5. From this corner, run and measure a random lin north, or parallel to the east boundary, to the nort boundary of the township, and note its intersectio whether at, or east, or west of the corner of sections 3 and 36 in the township north, excepting where yo close on a correction line, in which case you will note th distance east or west to the nearest section or quarte section corner, and establish a corner thereon, for sec tions 1 and 2, one mile west of the north-east corner o the township, according to the measure of the correctio line. In running this random line, posts must be se for temporary section and quarter section corners, an stakes or some other marks must be left to indicate th places of all the even tallies, or outs, as before directe in similar cases. From the corner of sections 1 and 2 return on the true line, in the direction of the place o beginning the random, to the corner of sections 1, 2, 1 and 12, blazing and marking the same as before directe for true lines, and establishing the quarter section co ner so as to leave the excess or deficiency of the whol measure in the half mile next to the north boundary o the township. From the corner of sections 1, 2, 11 an 12, run and measure a random line east for its corre ponding corner on the east boundary. Note its interse tion, and correct back, and establish the quarter sectio corner on the true line at equal distances between th section corners, blazing and marking the corrected lin as before directed. In like manner proceed to run, mea sure, mark and establish all the subdivision lines on thi part of the eastern tier of sections, until you close a the corner of sections 13, 14, 23 and 24.

6. Proceed in the same manner with each successiv tier of sections, to the last, changing the order only a far as necessary, when interrupted by lakes or other in terferences. From the section corners on the east side o the last tier, run random lines west for their correspond ing corners on the west boundary of the township, not your intersections, correct back from those corners, a

directed in other cases, before mentioned, and establish the quarter section corners on the corrected lines at the distance of forty chains from the section corners east of them, so that the excess or deficiency of measure may be thrown into the half mile next to the west boundary, as required by law.

7. Bearing trees are to be taken, and the proper marks and numbers made, for and within the sections between which the lines are run out to the north and west boundaries of the township, in all cases where such bearing trees have not been taken, and such marks made, for the section corners on those boundaries at which those lines close.

8. The plan here laid down is intended to illustrate the principles on which townships must be subdivided, so that the section lines may all run parallel either to the east or south boundaries thereof, and that each section may contain 640 acres, as nearly as practicable. To effect these objects, it is indispensably necessary that for every section line, unless it be irregular or fractional, there should first be run a random or trial line, which must afterward be corrected, where necessary, and run, marked, and established, in its proper place, as the corrected or true line. This must always be done according to some regular order, which, when once begun, must, as far as practicable, be continued throughout the township.

As a general rule, the order above prescribed is believed to be the best and most convenient that can be adopted; but if you find any other more convenient, and by which the surveys can be made with equal or greater accuracy, you are at liberty to adopt it, provided you give a clear and distinct statement, at the end of your field notes in each book, showing what that order is. A departure from the *principles* above laid down, *will not, however, under any circumstances, be permitted.*

9. To enable you to have all your random lines correctly run by the sun, as far as practicable, independ-

ently of the use of the magnetic needle, you are allowe
to employ, by the month, an assistant surveyor, who i
well skilled in the use of the solar compass, to run an
measure such lines, and take the field notes thereof, un
der your direction, in accordance with the above instruc
tions. The field notes of such assistant must, in al
cases, be taken in separate books, and be sworn to an
subscribed by him, before some person authorized to ad
minister oaths, and returned by you to this office.

10. The true lengths of all north and south, as we
as of all east and west section lines, must be given *ac*
cording to your measure, whether they agree with th
lengths of the same lines as ascertained by the compas
and the measure of the township lines, or not.

11. You are referred, here, to the accompanying spec
men of the Field Notes of a township, in which th
whole process of the subdivision is illustrated at larg
by example.

12. The foregoing mode of subdividing townshi
into sections, it will be perceived, is intended for, an
can be fully applied only, to *entire* townships. In th
subdivision of *fractional* townships, however, the ord
of the survey will be varied no farther than may be ne
cessary to adapt it to the situation and boundaries of suc
fractional township. As a general rule, from whic
there will be few exceptions, it will be found best t
make entire sections on the township lines bounding
fractional township, and making the work to close on th
irregular boundaries thereof.

13. An act of Congress of the 24th of May, 182
authorizes a departure from the ordinary mode of su
veying the public land on any river, lake, or bayo
whenever, in the opinion of the President of the Unit
States, the public interest would be promoted thereby
so as to survey such lands in tracts of two acres
width, fronting on such river, lake, or bayou, and ru
ning back to the depth of forty acres. But as no ge
eral rules could be framed to govern all such surve

this branch of the service is left to be provided for in *Special* Instructions, as cases thereof may occur.

14. Should you find a manifest error in the measurement of any township line within, or bounding your district, (which will be readily detected by the closing of your lines thereon,) you are to correct such error, by re-measuring such township line, from where the error is found, to the north or west end thereof. The section and quarter section corners thereon are to be removed to the proper distances, and there established; and the marks and numbers at the cancelled corners are to be cut out or effaced, and the distances at which you pass those corners must be noted by you. Of such re-measurement and corrections you are to take full and complete Field Notes, in a separate book, to be returned to the Surveyor General's Office, with the Field Notes of your subdivisions. For such corrections, however, the Surveyor General is not authorized to make any compensation, unless the amount thereof can be obtained from the Deputy by whom the erroneous survey was made, or shall be allowed by the Commissioner of the General Land Office.

OF MEANDERING RIVERS, &C.

1. You will accurately meander, by course and distance, all navigable Rivers which may bound or pass through your district; all navigable bayous flowing from or into such rivers; all lakes and deep ponds, of the area of forty acres and upwards; and all islands suitable for cultivation. At all those points where the township or section lines intersect the banks of such rivers, bayous, lakes or islands, posts are to be established, as before directed. In meandering, you are to intersect all these posts, closing at each post the course and distance on which it is intersected. You will likewise notice all streams of water falling into the river, lake, or bayou, which you are surveying, with their width at their mouth; all springs, noting the size thereof, and whether

pure or mineral water; the head and mouth of al
bayous, all rapids, falls, or cascades; all islands and bar
with intersections to their upper and lower points, to e
tablish their exact situation. This must be done with
the greatest accuracy, in relation to all islands which yo
shall meander, so as to determine and show their pre
cise location and bearing on the maps of the survey
and particular care must be taken to pass no object i
any degree worthy of note, nor any change in the to
pography along the waters that you meander, withou
giving a particular description thereof in its proper plac
in your meander notes.

2. Should any lake or pond which you shall meande
be situated within any one section, so as not to be inte
sected by any of the lines thereof, you will run and mea
sure a line very exactly, but without marking, from on
of the corners, or one of the half mile posts, or othe
given point on one of the lines of said section, to th
point on the margin of the lake at which you shall com
mence the meanders thereof. The true location of suc
lakes is necessary, in order to calculate the contents o
the subdivisions of such sections.

3. The width of streams of water or bayous bindin
on, or forming a boundary of your surveys, must be a
certained at every intersection of your lines therewith, b
trigonometrical process, or otherwise; which can gen
rally be most conveniently done in taking the meander
This is necessary for the correct exhibition of suc
streams on the township plats.

4. Except in cases where navigable streams constitut
the boundary line between two series or systems of su
veys commencing from different standard lines, suc
streams are not to interrupt the regular survey of th
townships through which they pass, the lines of whic
shall be continued across those streams to the complet
measure. And where the surveys have been closed o
a stream, as a boundary of a cession, or from oth
cause, and are afterward to be continued across suc

tream, the surveyor continuing the surveys on the opposite side, must extend the lines across the stream, so as to make the sections thereon complete.

5. To establish a uniform and simple mode of designating and distinguishing the two sides of navigable streams, the terms "Right bank," or "Left bank," will be used, in all cases, thus:—suppose yourself standing at the head of the river, looking down stream; then that bank of the stream on your right hand is to be called and referred to in your field notes as the "right bank," and that on your left hand as the "left bank." And these terms, thus applied to navigable rivers, are to be used in all cases, whether in running lines or taking meanders.

6. Great care must be taken to describe clearly the post at which any meanders of a river, bayou, lake, or island commence; and also all the posts, on township or section lines, which may be intersected in the progress of the meanders.

7. The Field Notes of meanders are to be written at the end of the subdivisions. The courses are to be inserted in a column on the left of the page; the distances, in chains and links, in a column next to this, and the notes or remarks on the right, opposite the proper course and distance. The column of distances must be added up at the foot thereof, on each page.

8. Errors in meandering are of very frequent occurrence, arising principally, it is believed, from bad chaining. Your special attention is called to the manner in which this part of the work is executed; and all possible accuracy is enjoined, both in the courses and measurement, and the entry thereof in your field-book.

9. Where the meanders of small lakes cannot be accurately run and measured by course and distance, in the usual manner, by reason of obstacles along their shores or banks, a well constructed series of triangles may be made across the lake, so connected that all the angles of the lake coast can be accurately platted. A

map of these triangulations must be made on a scale 8 inches to the mile, and their reduction into the me anders of the lake coast must be carefully entered your field book.

10. Streams to be meandered, having shores of lik character, may have their courses taken with a sola compass, and measured by the angles made betwee two parallel lines so placed in the principal focus of suitable telescope, attached to the sights of the compas as to form an angle in the field view of at least 50 mi utes, or 5-6 of a degree. For this purpose, the tel scope is made to bear upon a rod, divided into fee inches and tenths, and furnished with two targets, th upper one stationary, and the other moveable on th rod, to suit the angle seen through the telescope at va rious distances. The distance between the two target on the rod being then the measure of the angle forme by the two lines in the focus of the telescope, repre sents the distance between the compass and the ro which may be taken out, in chains and links, from table previously prepared for that purpose.

11. By observing, accurately, the number of fee inches, and tenths, which the targets are apart, whe they measure the angle formed by the parallel lines the telescope, at a given distance, of from three to fi chains from the compass, you will have data from whic such a table may be readily constructed for all othe distances at which the telescope will enable you to ob serve a difference in the distance between the targets one-tenth of an inch.

12. Wherever meanders are made by this metho the fact that they are so made should be distinctly show in the heading of your field notes, and the precise angl between the parallel lines in the focus of your telescop must also be stated. The stations at which observation are made, must be designated by progressive number and all the observations made at each station must be se down with great care and accuracy. Where a distanc

is noted, as measured by the telescope, the number of tenths of an inch on the rod, which corresponds to that distance, must also be carefully given, in order to facilitate the detection of errors, wherever they may occur.

13. Having taken the width of the river so frequently, and made such observations, on both sides of it, as to enable you to protract, accurately, its shores, you will make a plat thereof on a scale of eight inches to a mile, and from it enter the meanders of each shore in your field book in the usual manner, immediately after the field notes of your telescopic observations for each township. All such plats, whether of rivers or lakes, must be returned with your field notes to this office.

OF PRIVATE CLAIMS, INDIAN RESERVATIONS, &C.

1. In surveying Private Claims, Indian Reservations, or other tracts not conforming to section lines, the location thereof must be particularly described, and the place of beginning clearly stated in your Field Notes; also the name of the claimant in whose right the survey is made, with the number by which it is known; and if a reservation, the quantity contained in it, and the name of the reservee. The Field Notes of all the lines of each tract must be complete, and are to be entered in the Field Book separately from the notes of other tracts. The Field Notes of Private Claims and Indian Reservations, must be entered in separate books.

2. Wherever a section or township line intersects a line of a private claim or Indian reservation, there a corner must be established. The particular line intersected, with its course, and the name of the claimant or reservee, with the number or other designation by which it is known, must be noted. And from such intersection, the private claim or reserve line must be carefully measured, each way along said line, to the end thereof, unless it should be intersected by another section or township line before the end be reached.

3. The course of every line of the survey of a private

claim or Indian reservation, with the length thereof, the variation of the compass, and date of the surv are to be inserted in the Field Notes, which are to certified and signed by you.

OF FIELD NOTES.

1. The field books are all to be made of one unifo size, viz: foolscap octavo; or a sheet of common siz cap paper, folded into sixteen pages. The paper m be of good quality, and the books covered with moroc or other leather, and neatly stitched and trimmed, a contain space enough for all the field notes of a tow ship. The pages are to be ruled with red ink and fei lined.

2. The field notes of the subdivision of every tow ship, whether fractional or not, are to be written i separate book.

3. No one page, either of the notes of township lin or of subdivisions, is to embrace the field notes of mo than one section line.

4. The description of the surface, soil, minerals, ti ber and undergrowth on each section line, is to follo the notes of the survey of such line, and not to be mix up with them.

5. The language of your field notes must be so co cise and clear, and the hand in which they are writt so plain and legible, that no doubt can exist as to yo figures, letters, words or meaning. If otherwise, th must be accompanied with true and fair copies.

6. The only abbreviations allowable in your field not are—"in. diam.," for "inches, diameter," and the capit letters N. S. E. and W., for North, South, East a West. These latter words, however, must always b written in full, except when combined to express so course varying from the cardinal points.

7. The description of each mile must be independe and not refer to a preceding description.

8. The field notes must be taken, in all cases, preci

ly in the order in which the work is done on the ground, and must show truly the direction in which each line is run and measured.

9. The date of each day's work must follow immediately after the notes thereof.

10. All your writing, of every description, whether of field notes, memorandums, or arithmetical or trigonometrical calculations, relating to surveys that you may execute, must be taken, either in your regular field books, or in memorandum or miscellaneous books, of the same size and shape, which, when called for, must be returned to this office. It is not, therefore, allowable to make any notes, memorandums, or calculations, on loose pieces of paper.

11. On the first page of your field book of each township, insert in a plain and neat manner, by way of title, the number of the township and range, with the state in which it lies, and by whom surveyed, with the date of the commencement, and the date of completing the subdivision of the same.

12. Between the second and third pages, insert, without fastening there, a diagram neatly folded, drawn on tough bank note paper, on a scale of half a mile to an inch. On this diagram you will accurately delineate, as near as may be practicable by occular observation on the spot, as you progress with the work, the crossing and courses of all streams of water, the intersection, situation, and boundaries of all prairies, marshes, swamps, lakes, hills, and all other things mentioned in your field notes, the situation of which can be conveniently shown on the diagram. You will also insert thereon, in small figures, the length of all the section lines of the township.

13. On the fourth page, make an index diagram, representing all the sections in the township, on a scale of two miles to an inch, on each line of which, after the survey thereof is completed, you will write or print, in a neat and distinct manner, the number of the page of the book where the notes of that line may be found,

and, where the notes of the random line and of the corrected line are on different pages, the former must be referred to in red, and the latter in black ink."

14. Leaving, after this, sufficient room for the oaths of your chain-men and markers, if necessary, at the head of each subsequent page, on which the field notes are written, you will insert a running title, designating the number of the township and range, which is to be separated from the field notes by a double red line.

15. The *Field Notes* of the surveys furnish primarily the materials from which the plats and calculations of the public lands are made; and are the source from whence the description and evidence of the location and boundaries of those surveys are drawn and perpetuated. It is evidently, then, of the utmost importance that the Field Notes should be, at once, an accurate, clear, and minute record of every thing that is done by the Surveyor and his assistants, (in accordance with these Instructions,) in relation to running, measuring and marking lines, establishing corners, &c., as well as a full and complete topographical description of the country surveyed, as it regards every thing which may afford useful information, or gratify public curiosity.

16. For this purpose you are to enter in your Field Book, in a neat and distinct manner, notes or minutes of the following objects, viz:

17. The description, course and length of every line which you may run, beginning with the variation of the needle, if known to you, at the corner where you start.

18. The name, and estimated diameters of all corner and bearing trees, and the courses and distances of the bearing trees from their respective corners.

19. The name of the material of which you construct mounds, with the course and distance to the pits.

20. The names and estimated diameters of at least one or two of those trees which fall in your lines, called *station* or *line trees*, with their exact distances on the line, between every two corners. They should be se

taken as to divide the line as nearly into equal parts as practicable.

21. The face of the country, whether level, rolling, broken, hilly, or mountainous.

22. The quality and character of the soil, and whether first, second, or third rate.

23. The several kinds of timber and undergrowth with which the land may be covered, naming each kind of timber in the order in which it is most prevalent; and in prairie, the kind of grass or other herbage which it produces.

24. All rivers, creeks and smaller streams of water, with their right-angled width, and the course they run where the lines of your survey intersect or cross them, and whether the current be rapid, sluggish, or otherwise.

25. All rapids, cataracts, cascades, or falls of water, and the estimated amount of their fall, in feet.

26. All springs of water, and whether fresh and pure, or mineral; showing also on which side of the line situated, and the distance therefrom, and the course of the stream flowing from them.

27. All lakes and ponds, with the description of banks surrounding them, and whether the water be deep or shallow, pure or stagnant.

28. The meanders of all lakes, navigable rivers, bayous, islands, and streams forming boundaries.

29. All prairies, swamps, and marshes.

30. All coal banks or beds, and peat or turf grounds.

31. All precipices, caves, stone quarries, and ledges of rock, with the kind of stone found in them.

32. All towns and villages, Indian towns and wigwams, houses or cabins, fields or other improvements, sugar-tree groves, and sugar camps.

33. All minerals and ores, with particular descriptions of the same, as to their quality and extent.

34. All diggings for minerals, smelting or other furnaces, forges and factories.

35. The exact situation, and description of all mine salt springs, salt licks and mill-seats, which you may di cover, or that may come to your knowledge.

36. All fossils, petrifactions, and other natural cur osities, with descriptions thereof.

✓ 37. All travelled roads, and "trails," with the courses, and denoting the places from, or to which the lead.

✓ 38. The tracks of tornadoes or hurricanes, commonl called "windfall," or "fallen timber," shewing the dire tion of the wind, as indicated by the fallen trees.

✓ 39. All ancient works of art, as mounds, fortifications embankments, ditches, or other similar objects.

40. All offsets, or methods of whatever kind, b which you shall obtain the measurement or distance o any line which cannot be actually measured

41. At what distance you enter and at what distanc you leave every lake, bay, pond, creek, bottom, wind fall, grove, prairie, ravine, marsh and swamp, with th course of the same at both points of intersection; als the distances at which you begin to ascend, arrive a the top, begin to descend, and reach the foot of all hill and ridges, with their course, and estimated heights i feet above the level land of the surrounding countr or above the bottom lands, ravines, or waters on whic they are situated.

42. The variation of the needle must be noted at, an on each side of all places on the lines where there i any material change of variation, and the distances t the points where the observations are made must b given.

43. The precise course and distance of all witnes corners from the true corners which they represen must be stated in the descriptions of those corners.

44. In addition to the foregoing items, you will in sert notes of any others as the occasions therefor ma occur. The field notes are to be written out in you book, on the spot, as you proceed with the work. Noth

ing in your notes must be left to be supplied by memory.

45. Rivers, creeks, and smaller streams, lakes, swamps, prairies, hills, mountains, or other natural objects, are to be distinguished in your field notes by their received names only, where names have heretofore been given. In any case you are not to give original names.

46. Beside the ordinary Field Notes taken on the lines, you will add at the end of your field book, such further description or information as you may be able to give, concerning any thing in the township, worthy of particular notice, or which you may judge necessary or useful to be known. And you will add also, a general notice or description of the township, in the aggregate, as it regards the face of the country, soil timber, &c.

47. In your field book, the courses and distances must be placed in a column on the left hand side of the page, and your notes and remarks on the right. The *original* field notes must in all cases, be returned into the office of the Surveyor General.

48. Following the general description of each township, at the end of the field notes in each book, you will give a list of the names and residences of all the persons who may have assisted either in running measuring or marking, the lines and corners therein described, stating the capacity in which each acted; and below such list, a certificate must be written affirming its correctness, and that the township has been in every respect well and faithfully surveyed, according to the instructions of the Surveyor General, which certificate must be subscribed and sworn to by the persons named in the list, either before yourself, as a Deputy Surveyor, or before some other person duly authorized to administer oaths. The following forms, as far as applicable, may be used for this purpose:

List of names and residences of persons who assisted in running, measuring, or marking the lines and corners described in the foregoing field notes of township— N. of Range———, in the State of———,viz:

A——B——, a resident of——in the county of— in the State of———and C——D——of——in t county of———and State of———performed the d ty of chainmen and marked the corners; E——F—— ———in the county of——and State of———and ——H——of———in the county of——and State ———performed the duty of axe-men; and I—— ——of———in the county of———and State of— performed the duty of compass-man, under the perso al supervision and direction of L——M——Deput Surveyor, in running most of the lines, above referr to.

We hereby certify that we assisted L. M., Deput Surveyor, in subdividing township——of Range——i the State of———that our names and residences, an the duties that we respectively performed, are correct set forth in the above statement, and that said town ship has been in every respect well and faithfully su veyed, according to the instructions of the Survey General.

A——B——Chainman,
C——D——Chainman,
E——F——Axe-man,
G——H——Axe-man,
I——K——Compass-man.

Subscribed and sworn to by the above named person before me at———this——day of——18—.

O——P——, Justice of the Pea (or other officer authorized to administer oaths) of th county of——and State of——

40. In every field book, after the certificate abov mentioned, an affidavit of the following form is to b written, and sworn to and subscribed by you befo some person duly authorized to administer oaths, viz.

I, L——M——of———in the county of——an State of———, a Deputy Surveyor, do solemnly swea (or affirm) that, in pursuance of a contract with C—— N——Surveyor General of the United States, for Ohio, Indiana, and Michigan, bearing date——day of—— 18—. and in strict conformity to the laws of the United States, and the instructions of the said Surveyor General, I have faithfully and correctly surveyed township number——of range no——of the principal meridian, in the State of——and I do further solemnly swear (or affirm) that the foregoing are the true and original field notes of the said survey, executed as aforesaid.

L——M——, Deputy Surveyor.

Subscribed by said L——M——, Deputy Surveyor, and sworn to before me at——this——day of—— 18—. O——P——, Justice of the Peace, (or other officer authorized to administer oaths) of—— in the county of——and State of——

50. Should you employ an assistant to run random lines, an affidavit, of the following form, must be written, subscribed and sworn to by him after his field notes in each book, viz:

I, R——S——, of——in the county of——and State of——do solemnly swear, that the foregoing are the true and original field notes of the random lines therein described, in township——of range——in the State of——and that the said lines were carefully and accurately run by me with a good solar compass, independently of the needle, except as mentioned in said notes, and that they were measured in my presence under the direction and at the expense of L——M—— Deputy Surveyor, while I was employed by him and paid by the month.

R——S——,

Random line Surveyor.

Subscribed by said R——S—— random line surveyor, and sworn to before me this——day of—— 18—.

O——P——, Justice of the Peace.

(or other officer authorized to administer oaths) of——— in the county of———and State of———.

51. A printed specimen of the Field Notes of the subdivision of a township into sections, accompanies these Instructions; which will serve to illustrate both the order and method of performing the surveys, and the most approved form of keeping the Field Notes; for which purpose, it is to be regarded as a part of these General Instructions. Where the notes of the true line follow immediately after those of the random, the provisions of section 3, under the head of field notes, must be carefully adhered to. When they do not so follow, a page may embrace the notes of more than one mile, provided they do not extend to the next page.

52. Any material departure from these Instructions, or negligence in the observance thereof, will be considered as a violation of the conditions of your contract, and a forfeiture of all claim for payment. And loose, inaccurate, precipitate, or defective work, either as it respects the surveys in the field, or the notes and returns thereof on paper, ☞ *will not be admitted.*

53. That you may better understand the responsibility under which you are acting, your attention is particularly called to the provisions of the third section of an act of Congress, approved August 8th, 1846, entitled "an act to equalize the compensation of the Surveyor General of the public lands of the United States, and for other purposes," which is as follows, viz:

"Sec. 3. That the Surveyor General of the public lands of the United States, in addition to the oaths now authorized by law to be administered to deputies on their appointment to office, shall require each of their deputies, on the return of his surveys, to take and subscribe an oath or affirmation that the surveys have been faithfully and correctly executed, according to law and the instructions of the Surveyor General; and, on satisfactory evidence being presented to any court of competent jurisdiction, that such surveys, or any part thereof, had not been thus executed, the deputy making such false oath or affirmation shall be deemed guilty of perjury, and shall suffer all the pains and penalties attached to that offence; and the district attorney of the United States for the time being, in whose district any such false, erroneous, or fraudulent surveys shall have been executed, shall, upon the application of the proper Surveyor General, immediately institute suit upon the bond of such deputy; and the institution of such suit shall act as a lien upon any property owned or held by such deputy, or his sureties, at the time such suit was instituted."

The provisions of the above section will, in all cases, and in every particular, be rigidly enforced.

Surveyor General.

SPECIMEN

OF

FIELD NOTES

TO ACCOMPANY THE

GENERAL INSTRUCTIONS

TO

DEPUTY SURVEYORS,

SHOWING THE ORDER OF SUBDIVIDING A TOWNSHIP INTO SECTIONS.*

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*NOTE.—As the township lines are all complete in this State, no Field Notes of township lines are given.

SUBDIVISION

OF

Township 53 North, Range 15 West.

OF THE

PRINCIPAL MERIDIAN OF MICHIGAN,

BY A. B., DEPUTY SURVEYOR.

Begun, April 1st, 1850.
Finished, May 1st, 1850.

Township 53, North Range 15 West, Meridian Michigan.

Chs.	Lks.	
		Beginning at post on East boundary between sections 13 and 24. Thence
West,		*Random between sections* 13 *and* 24.
		Variation 5° 00′ East.
34	50	Stream 15 links, course N.W.
40	00	Set temporary post.
		Variation 5° 50′ East.
80	00	Set temporary post corner of sections 13, 14, 23 and 24.
		Land rolling; first rate clay soil. Timber, Sugar, Beech, Lynn, Elm, Hickory, Black Walnut, &c. No undergrowth.

West,		*Random between sections* 14 *and* 23.
		Variation 5° 15′ East.
20	00	Indian trail from sugar camp in section 24 to Indian village. Course N. W. and S.E.
40	00	Set temporary post.
		Variation 5° 00′ East.
80	00	Set temporary post corner of sections 14, 15, 22 and 23.
		Land gently rolling; second rate clay soil. Timber, Beech, Sugar, Hickory, Ironwood, Elm, Lynn, &c.

Chs.	Lks.	
West,		*Random between sections* 15 *and* 22.
		Variation 5° 00′ East.
28	00	Intersect pond. Course North and South, mostly South of line.
35	00	Leave pond. Course N.E. and S.W.
40	00	Set temporary post.
		Variation 5° 10′ East.
80	00	Set temporary post, corner of sections 15, 16, 21 and 22.
		Land gently rolling, and first rate. Timber, Beech and Sugar trees.

West,		*Random between sections* 16 *and* 21.
		Variation 5° 00′ East.
40	00	Set temporary post.
		Variation 4° 55′ East.
80	00	Set temporary post, corner of sections 16, 17, 20 and 21.
		Land gently rolling, and second rate. Timber, Beech, Sugar, Hickory, Ironwood, Elm and Lynn.

Township 53 North, Range 15 West, Meridian Michigan.

Chs.	Lks.	
West,		*Random between sections* 17 *and* 20. Variation 4° 50′ East.
13	50	Road, course N.E. and S.W.
20	00	Intersect East boundary of Indian Reservation, and enter cultivated fields; house and saw mill about 5 chains south on stream. Variation 4° 50′ East.
40	00	Leave fields. Course N. and S.
51	00	Enter bottom land. Course N.W. and S.E.
60	50	Stream, 40 links. Course N.W.
72	00	Stream, 50 links. Course North.
74	00	Ascend 20 feet from bottoms to White and Yellow Pine Plains. Course North and South.
80	00	Set temporary post in Reserve.
		Land, first 5 chains rolling, second rate; remainder bottoms and Pine Plains.

Chs.	Lks.	
West,		*Random between sections* 18 *and* 19. Variation 4° 15′ East.
20	00	Intersect West boundary of Indian Reservation. Variation 4° 00′ East.
40	00	Set temporary post. Variation 4° 00′ East.
75	50	Intersect West boundary 139 links North of post.
		Land level. Timber, White and Yellow Pine plains; third rate sandy soil.

N. 89°50′E		*Corrected between sections* 18 *and* 19. Variation 4° 00′ East.
10	50	White Pine, 20 in. diam.
25	00	Yellow Pine, 13 in. diam.
35	50	Set quarter section post. White Pine 10 North, 19° East, 31 links. Yellow Pine 30 South 23° West, 45 links.
48	70	White Pine 8 in. diam.
55	50	Intersect West line of Indian Reservation, and set post. Yellow Pine 10 North 50° East, 20 links. Ditto 15 South, 25° West, 60 links. Measured South on West line of Indian Reservation, 40 chains to S.W. corner.
75	50	Corner of sections 17, 18, 19 and 20 in Reserve.

April 1st, 1850.

Township 53 North, Range 15 West, Meridian Michigan.

Chs.	Lks.	
N. 89° 50′ E		*Corrected between sections* 17 *and* 20.
60	00	Intersect East line of Indian Reservation, and set post in East side of improvements.
		Beech 25 North 18° East, 75 links.
		Birch 17 South 29° West, 43 links.
68	00	White Oak 13 in. diam.
80	00	Set post corner of sections 16, 17, 20 and 21.
		Black Oak 25 North 40° East, 29 links.
		Hickory 18 South, 29° West, 40 links.

N 89° 50′ E		*Corrected between sections* 16 *and* 21.
8	00	Beech 12 in. diam.
25	00	Black Oak 15 in. diam.
40	00	Set quarter section post.
		Hickory 14 North, 50° East, 28 links.
		Beech 10 South, 28° West, 19 links.
48	00	White Oak 18 in. diam.
64	00	Maple 14 in. diam.
80	00	Set post corner of sections 15, 16, 21 and 22.
		Elm 14 South, 25° East, 18 links.
		Birch 20 North, 20° West, 45 links.

Chs.	Lks.	
N.89° 50′ E.		*Corrected between sections* 15 *and* 22.
15	00	Ironwood 18 in. diam.
35	50	White Ash 13 in. diam.
40	00	Set quarter section post.
		Ironwood 8 North, 25° West, 17 links.
		Black Ash 10 South, 18° East, 28 links.
53	00	Black Oak 10 in. diam.
80	00	Set post corner of sections 14, 15, 22 and 23.
		Beech 20 North, 28° West, 60 links.
		Black Oak 15 South, 40° East, 80 links.

N.89° 50′ E.		*Corrected between sections* 14 *and* 23.
14	00	Ironwood 14 in. diam.
30	00	Beech 24 in. diam.
40	00	Set quarter section post.
		Lynn 18 South, 2° West, 40 links.
		Elm 28 North, 40° East, 60 links.
50	00	Black Walnut 25 in. diam.
68	00	Hickory 18 in. diam.
80	00	Set post corner of sections 13, 14, 23 and 24.
		Black Walnut 18 North, 24° West 15 links.
		Elm 14 South, 45° East, 29 links.

Chs.	Lks.	
N.89° 50′E.		*Corrected between sections* 13 *and* 24.
20	00	Hickory 15 in. diam.
23	00	Elm 40 in. diam.
40	00	Set quarter section post. Sugar 25 North, 29° West, 48 links. Lynn 18 South, 18° East, 60 links.
68	00	Beech 25 in. diam.
80	00	Intersect East boundary at post. April 2d, 1850.

South,		*Random between sections* 23 *and* 24. Variation 5° 15′ East.
8	50	Indian trail from sugar camp in N.E. corner of section 24. Course N. W.
40	00	Set temporary post. Variation 5° 15′ East.
80	00	Set temporary post corner of sections 23, 24, 25 and 26. Land rolling, first rate; Timber, Sugar, Beech, Lynn, Elm, Hickory, Black Walnut, Ironwood, &c.

South,		*Random between sections* 25 *and* 26. Variation 5° 50′ East.
40	00	Set temporary post. Variation 5° 45 East.
80	00	Set temporary post corner of sections 25, 26, 35 and 36. Land gently rolling, second rate; Timber, Beech, Sugar, Lynn, White Ash, Maple, Ironwood, &c.

Chs.	Lks.	
South,		*Random between sections* 35 *and* 36. Variation 5° 30′ East.
15	90	Enter prairie. Course N.E. and S.W.
40	00	Set temporary post. Variation 5° 45′ East.
49	00	Leave prairie and enter grove. Course N.E. and S. W.
71	00	Leave grove and enter prairie. Course East and West.
80	12	Intersect South boundary 35 links West of post.
		Land gently rolling, second rate; Timber North of prairie, Beech, Maple, Oak, &c. Timber in grove principally Oak. Soil of prairie dry, light colored, sandy loam.
N. 5′ W.		*Corrected between sections* 35 *and* 36. Variation 5° 00′ East.
9	50	Black Oak 10 in. diam.
24	00	Black Oak 20 in. diam.
40	02	Set quarter section post in prairie, and raised a mound of earth and sod around it.
70	00	Beech 10 in. diam.
80	04	Set post corner of sections 25, 26, 35 and 36. Beech 20 North, 40° East, 10 links. Maple 18 South, 25° West, 05 links.

April 3d, 1850.

Chs.	Lks.	
East,		*Random between sections* 25 *and* 36.
		Variation 5° 30′ East.
30	00	Enter prairie. Course N.E. and S.W.
40	00	Set temporary post.
		Variation 5° 50′ East.
79	90	Intersect East boundary at post.
		Land first 30 chains gently rolling, second rate; Timber, Beech, Maple, Ash, Ironwood, &c. Remainder rolling prairie; soil good sandy loam, almost first rate.
West,		*Corrected between sections* 25 *and* 36.
		Variation 5° 50′ East.
39	95	Set quarter section post in prairie; raised a mound of earth and sod.
63	20	Beech 20 in. diam.
79	90	Section corner.
N. 5′ W.		*Corrected between sections* 25 *and* 26.
13	50	Beech 18 in. diam.
34	00	White Ash 14 in. diam.
40	02	Set quarter section post.
		Sugar 25 North, 18° East, 15 links.
		Beech 15 South, 25° West, 16 links.
49	00	White Ash 14 in. diam.
62	50	Lynn 20 in. diam.
80	04	Set post corner of sections 23, 24, 25 and 26.
		Black Walnut 14 North, 5° East, 29 links.
		Ironwood 12 South, 29° West, 04 links.

East,		*Random between sections* 24 *and* 25.
		Variation 5° 50′ East.
40	00	Set temporary post.
		Variation 5° 50′ East.
80	04	Intersect East boundary 12 links North of post.
		Land gently rolling, first rate; Timber, Beech, Sugar, Lynn, Elm, Hickory, Ironwood, &c. Undergrowth the same.
		April 4th, 1850.

N.89°55′W.		*Corrected between sections* 24 *and* 25.
		Variation 5° 00′ East.
24	00	Sugar 15 in. diam.
40	02	Set quarter section post. Hickory 18 North, 15° West, 07 links. Red Elm 14 South, 14° East, 04 links.
50	00	Red Elm 18 in. diam.
70	00	White Ash 15 in. diam.
80	04	Section corner.

N. 5′ W.		*Corrected between sections* 23 *and* 24.
13	00	Lynn 30 in. diam.
29	00	Hickory 20 in. diam.
40	02	Set quarter section post. Sugar 15 North, 40° West, 10 links. Maple 10 South, 10° East, 8 links.
52	00	Elm 30 in. diam.
67	00	Beech 18 in. diam.
80	04	Corner of sections 13, 14, 23 and 24.

Chs.	Lks.	
North,		*Random between sections* 13 *and* 14. Variation 5° 15′ East.
27	00	Enter alder bottoms. Course East and West.
31	00	Stream 30 links, course West. Beaver dam and pond 2 chains East.
34	50	Leave alder bottoms. Course East and West.
55	00	Enter swale. Course East and West.
60	00	Leave swale. Course East and West.
80	00	Set temporary post corner of sections 11, 12, 13 and 14.
		Land gently rolling; second rate. Timber, Beech, Maple, Hickory, Elm, Black Ash, &c. Undergrowth on upland, Spice bush; in bottoms, Alder.

North,		*Random between sections* 11 *and* 12. Variation 5° 10′ East.
32	00	Descend 10 feet, and enter bottom land, Meadow.
40	00	Intersect stream, 200 links. Course West. Variation 5° 00′ East.
54	25	Ascend 10 feet from bottom, and enter burnt land. Course East and West.
80	00	Set temporary post, corner of sections 1, 2, 11, and 12.
		North of bottoms, burnt land, third rate, sandy soil; bottoms dry, rich, first rate land; South of bottoms gently rolling, first rate; Timber Sugar, Beech, Lynn, Elm, Hickory, Black Walnut, &c. Undergrowth Sugar, and Ironwood.

Chs.	Lks.	
North,		*Random between sections* 1 *and* 2.
		Variation, 5° 10′ East.
28	00	Leave burnt land, and enter windfall. Course N. W. and S. E.
18	50	Stream, 40 links. Course West.
40	00	Set temporary post.
		Variation 5° 00′ East.
61	25	Leave windfall, in thicket. Course N. W. and S. E.
79	50	Intersect north boundary, at post.
		Land, Balsam Thicket, windfall, and burnt land, rolling and third rate.
		April 5th, 1850.
South,		*Corrected between sections* 1 *and* 2.
		Variation 5° 00′ East.
		Black Oak 10, South 40° West, 15 links.
		Poplar 13, South 28° East, 8 links.
15	00	Balsam tree, 10 in. diam. in thicket.
39	50	Set quarter section post, in windfall.
		Black Oak 20 North, 75° East 1.60 links. No other tree near.
65	00	Black Oak, 15 in. diam.
79	50	Set post Corner of sections 1, 2, 11, and 12.
		Black Oak, 10 North 50° East 28 links
		White Oak, 8 South, 48° West, 60 links.

Chs.	Lks.	
East,		*Random between sections* 1 *and* 12.
		Variation, 5° 10' East.
39	00	Leave burnt land, and enter windfall. Course N. W. and S. E.
79	90	Intersect East boundary in windfall at post.
		Land rolling, burnt land and windfall; Soil sandy and third rate; Timber, nearly all dead Black and White Oak, and Aspen.

West.		*Corrected between sections* 1 and 12.
20	00	White Oak, 10 in. diam.
39	95	Set quarter section post.
		Variation, 5° 50' East.
		White Oak, 14 North, 15° East 25 links.
		Black Oak 4, North 8° West, 18 links.
60	15	Dead Beech, 10 in. diam.
79	90	Section corner, in burnt land.

South,		*Corrected between sections* 11 *and* 12.
19	36	Beech 10 in. diam.
40	00	Set quarter section post, on left bank of stream 200 links wide. Course West, and raise a mound of earth, and sod around it.
50	30	Hickory, 20 in. diam.
70	00	Red Elm 24 in. diam.
80	00	Set post corner of sections 11, 12, 13 and 14.
		Sugar 18 North, 15° East, 10 links.
		Beech 24 S. 24° W. 8 links.
		April, 6th 1850.

Chs.	Lks.	
East,		*Random between sections* 12 *and* 13. Variation 5° 10′ East.
35	00	Descend 10 feet to river bottoms. Course N. W. and S. E.
42	50	Intersect sluggish stream and pond. Course North and South.
49	50	Leave Pond and stream. Course N. W. and S. E.
67	00	Ascend 10 feet, from river bottoms to burnt land. Course N. W. and S. E.
80	00	Intersect east boundary, 23 links north of post.
		Land, first 35 chains gently rolling, first rate clay soil; timber Sugar, Beech, Lynn, Elm, Hickory, Black Walnut, &c. Bottom, dry wild meadow, with scattering clumps of alder bushes. Grass good for hay.
S.89°50′W.		*Corrected between sections* 12 *and* 13. Variation 5° 15′ East.
13	10	Black Oak 8 in. diam.
40	00	Set quarter section post, Variation, 5° 15′ East.
		Sugar tree, 14 N. 5° W. 37 links.
		Lynn, 19 S. 36° W. 20 links.
59	85	Beech 22 in. diam.
80	00	Section corner.

Chs.	Lks.	
South,		*Corrected between sections* 13 *and* 14.
12	80	Beech 18 in. diam.
30	00	Sugar 15 in. diam.
40	00	Set quarter section post.
		Hickory 18 South 20° East 11 links.
		Elm 19, North 40° West 10 links.
59	00	Black Walnut 10 in. diam.
80	00	Corner of sections, 13, 14, 23, and 24.

South,		*Random between sections* 22 *and* 23.
		Variation 5° 10′ East.
30	25	Enter Tamarack Swamp. Course East and West.
44	00	Stream 10 links. Course West.
80	00	Set temporary post, corner of sections, 22, 23, 26, and 27.
		Land, North of swamp, gently rolling, second rate. Timber, Beech, Sugar, White and Black Oak, Ironwood, Birch, &c. Undergrowth same.

South,		*Random between sections* 26 *and* 27.
		Variation 5° 15′ East.
14	25	Stream one link. Course North West.
23	00	Leave Swamp. Course East and West.
80	00	Set temporary post, corner of sections 26, 27, 34, and 35.
		Land, except Swamp, slightly rolling, second rate sandy soil; Timber, Beech, Sugar, Lynn, Ash, Maple &c.
		April, 8, 1850.

Chs.	Lks.	
South,		*Random between sections* 34 *and* 35.
		Variation, 5° 15' East.
40	00	Set temporary post.
		Variation, 5° 00' East.
80	00	Intersect South boundary 1.06 links, West of post.
		Land nearly level, second rate, sandy soil; Timber, Beech, Sugar, Lynn, Ash, and Maple.

N.	15' W.	*Corrected between sections* 34 *and* 35.
		Variation 5° 00' East.
13	15	Beech 20 in. diam.
30	00	White Ash, 14 in. diam.
40	00	Set quarter section post.
		White Oak 18 N. 15° E. 40 links.
		Black Oak 14 S. 40° W. 32 links.
60	60	Maple 25 in. diam.
80	00	Set post, corner of sections 26, 27, 34, and 35.
		Sugar 15 S. 25° E. 40 links.
		Ditto 14 N. 40° W. 25 links.

East,		*Random between sections* 26 *and* 35.
		Variation 5° 15' East.
40	00	Set temporary post.
		Variation 5° 40' East.
80	30	Intersect North and South line, 10 links South of post.
		Land slightly rolling, second rate; Timber, Beech, Sugar, Maple, Birch, Ironwood, White and Black Ash, &c.

Chs.	Lks.	
S. 89° 56′ W.		*Corrected between sections* 26 *and* 35.
15	00	White Ash, 19 in. diam.
32	00	Ironwood 16 in. diam.
40	15	Set quarter section post.
		Beech 20 N. 40° E. 8 links.
		Sugar 18 S. 27° W. 15 links.
53	60	Sugar 25 in. diam.
67	00	Birch 14 in. diam.
80	30	Section Corner.
		April 9th, 1850.

N. 15′ W.		*Corrected between sections* 26 *and* 27.
13	30	Sugar 24 in. diam.
27	75	White Ash 20 in. diam.
40	00	Set quarter section post.
		Variation 5° 00′ East.
		Beech 20 N. 40° W. 13 links.
		White Ash 13 S. 10° E. 80 links.
58	00	Tamarack 18 in. diam.
70	00	Tamarack 8 in. diam.
80	00	Set post corner of sections 22, 23, 26 and 27.
		Tamarack 14 N. 15° E. 20 links.
		Ditto, 10 S. 10° W. 8 links.

Chs.	Lks..	
East,		*Random between sections* 23 *and* 26.
		Variation 5° 15′ East.
12	25	Leave Swamp. Course North and South.
40	00	Set temporary post.
		Variation 5° 30′ East.
80	07	Intersect North and South line 14 links North of post.
		Land, except Swamp, gently rolling, second rate; Timber, Sugar, Beech, Lynn, Maple, White and Black Ash, &c.

N.89° 54′W		*Corrected between sections* 23 *and* 26.
11	00	Sugar 15 in. diam.
79	00	Beech 25 in. diam.
40	03½	Set quarter section post.
		Beech 14 N. 4° E. 19 links.
		Beech 18 S. 2° W. 19
58	00	Ironwood 4 in. diam.
70	00	Tamarack 10 in. diam.
80	07	Section corner.

N. 15′ W.		*Corrected between sections* 22 *and* 23.
13	40	Tamarack 10 in. diam.
28	00	Tamarack 15 in. diam.
40	00	Set quarter section post.
		Tamarack 19 N. 11° W. 10 links.
		Tamarack 14 S. 40° E. 8 links.
60	00	Sugar 25 in. diam.
80	00	Corner of sections 14, 15, 22 and 23.

North,		*Random between sections* 14 *and* 15.
		Variation 5° 00′ East.
10	00	Old Indian trail and road. Course East and West.
40	00	Set temporary post.
		Variation 5° 15′ East.
80	00	Set temporary post, corner of sections 10, 11, 14 and 15.
		Land rolling, second rate; Timber, Beech, Sugar, Oak, Maple, Ironwood, &c.
		April 10th, 1850.

North,		*Random between sections* 10 *and* 11.
		Variation 5° 25′ East.
40	00	Set temporary post.
		Variation 5° 00′ East.
80	00	Set temporary post corner of sections 2, 3, 10 and 11.
		Land rolling, and second rate; Timber, White and Black Oak, Maple, Ironwood, &c.

Chs.	Lks.	
North,		*Random between sections* 2 *and* 3.
		Variation 5° 00′ East.
24	00	Descend 15 feet to river bottoms. Course N.W. and S.E.
39	00	Stream 200 links. Course West.
49	50	Ascend 10 feet, and leave bottoms. Course East and West.
64	00	Descend 12 feet, and enter bottoms to Salmon river. Course N.E. and S.W.
73	00	Wagon road. Course N.E. and S.W.
79	00	Intersect North boundary 69 links West of post.
		Land, South 24 chains rolling, second rate; Timber, Oak, Maple, Ironwood, White and Black Ash, &c. Remainder mostly river bottoms; meadow affording good grass for mowing.
S. 10′ W.		*Corrected between sections* 2 *and* 3.
		Variation 5° 00′ East.
		Corner in bottoms; no trees.
23	00	Black Oak 14 in. diam.
39	00	Quarter section corner in middle of stream, too deep to set post.
40	50	Set post for witness corner on south side of stream, in meadow bottoms, 150 links South of true corner, and raised a mound of earth and sod around it. Pit 8 links South of mound.
65	00	Ironwood 10 in. diam.
79	00	Set post corner of sections 2, 3, 10 and 11.
		Maple 10 N. 20° E. 08 links.
		White Oak 19 S. 10° W. 14 links.

Chs.	Lks.	
East,		*Random between sections* 2 *and* 11.
		Variation 5° 00′ East.
10	00	Descend 10 feet and enter meadow bottoms. Course N.W. and S.E.
27	00	Stream 200 links. Course North.
43	00	Ascend 10 feet; leave bottoms and enter burnt land. Course N.W. and S.E.
80	04	Intersect North and South line 35 links North of post.
		Land, first 10 chains rolling, second rate; remainder bottoms and burnt land; burnt land rolling and third rate; bottom, second rate, and affords tolerable wild hay.

N.89°45′ W		*Corrected between sections* 2 *and* 11.
20	00	Dry Oak 15 in. diam.
40	02	Set quarter section post in bottoms.
		Variation 5° 15′ East.
		Swamp White Oak 11 N. 20°E. 3.05 links.
		Black Ash 13 S. 88° E. 3.06 links.
71	00	Black Oak 15 in. diam.
80	04	Section corner.

Chs.	Lks.	
S. 10′ W.		*Corrected between sections* 10 *and* 11.
17	00	Maple 10 in. diam.
30	00	Ironwood 12 in. diam.
40	00	Set quarter section post. Black Oak 14 N. 30° E. 10 links. Beech 10 S. 10° W. 92 links.
54	00	Beech 10 in. diam.
67	00	Maple 15 in. diam.
80	00	Set post corner of sections 10, 11, 14 and 15. Beech 18 N. 5° W. 08 links. White Oak 15 S. 40° E. 07 links. Friday, April 12th, 1850.

Chs.	Lks.	
East,		*Random between sections* 11 *and* 14.
		Variation 5° 25′ East.
50	**00**	Enter alder bottoms. Course N.N.W. and S.S.E.
54	00	Stream 20 links. Course North, rapid.
62	**50**	Leave alder bottoms. Course N.W. and S.E.
80	**10**	Intersect North and South line 24 links North of post.
		Land except alder bottoms rolling, second rate. Timber East of bottoms Sugar, Beech, Lynn, Elm, &c. West of bottoms, Oak, Maple, Ironwood, &c.

N.89°50′W.		*Corrected between sections* 11 *and* 14.
13	60	Sugar 15 in. diam.
27	00	Ironwood 18 in. diam.
40	05	Set quarter section post.
		Variation 5° 30′ East.
		Beech 15 N. 80° W. 04 links.
		Black Oak 10 S. 25° E. 08 links.
60	36	Maple 26 in. diam.
80	10	Section corner.

Chs.	Lks.	
West,		*True Line between sections* 10 *and* 15.
		Variation 5° 25′ East.
21	00	White Oak 20 in. diam.
37	25	Intersect rear line of Lucius Lyon's Claim, and set post at intersection.
		Black Oak 15 N. 50° E. 07 links.
		Maple 25 S. 10° W. 09 links.
		Measured from intersection N. 45° E. 11 chains 50 links to N.E. corner of claim.
		Variation 3° 15′ East.

S. 10′ W.		*Corrected between sections* 14 *and* 15.
20	00	Sugar 10 in. diam.
32	00	Maple 5 in. diam.
40	00	Set quarter section post.
		Yellow Birch 8 N. 15° E. 20 links.
		Beech 24 S. 20° W. 05 links.
52	00	Beech 25 in. diam.
71	50	White Ash 15 in. diam.
80	00	Corner of sections 14, 15, 22 and 23.

Chs.	Lks.	
South,		*Random between sections* 21 *and* 22.
		Variation 5° 00′ East.
10	50	Enter cedar and tamarack swamp. Course East and West.
23	75	Stream, 3 links. Course S.E.
52	75	Stream 15 links. Course S.W.
68	00	Leave swamp. Course East and W.
75	00	Stream 20 links. Course West, rapid; sandy bottom.
80	00	Set temporary post corner of sections 21, 22, 27 and 28.
		Land mostly swamp; dry land second rate. Timber North of swamp, Beech, Maple, &c. South of swamp, Oak, Beech, &c.

South,		*Random between sections* 27 *and* 28.
		Variation 6° 00′ East.
29	00	Limestone ledge. Course East and West.
31	50	Leave ledge, course East and West, dips South at an angle with the horizon of about 30 degrees.
		Variation 6° 15′ East.
47	50	Stream 5 links. Course N.E.
80	00	Set temporary post corner of sections 27, 28, 33 and 34.
		Land level, second rate; Timber, Black and White Oak, Beech, Maple, &c.

Chs.	Lks..	
South,		***Random between sections* 33 *and* 34.**
		Variation 5° 50′ East.
40	00	Set temporary post.
		Variation 5° 10′ East.
79	70	Intersect South boundary at post.
		Land level, second rate; Timber, White and Black Oak, Beech, Maple, &c.
North,		*Corrected between sections* 33 *and* 34.
		Variation 6° East.
15	00	Beech 10 in. diam.
27	00	Maple 15 in. diam.
39	95	Set quarter section post.
		White Oak 30 N. 50° E. 29 links.
		White Oak 15 S. 20° W. 08 links.
62	00	Beech 24 in. diam.
79	90	Set post corner of sections 27, 28, 33 and 34.
		Beech 18 N. 18° W. 04 links.
		Beech 14 S. 29° E. 12 links.

Chs.	Lks..	
East,		*Random between sections* 27 *and* 34.
		Variation 5° 50′ East.
45	00	Stream 10 links. Course North.
79	95	Intersect North and South line 16 links South of post.
		Land slightly rolling, second rate; Timber, Beech, Sugar, Maple, Birch, Ironwood, &c.

S. 89° 53′ W.		*Corrected between sections* 27 *and* 34.
12	60	Sugar 28 in. diam.
28	00	Beech 14 in. diam.
39	97½	Set quarter section post.
		Variation 5° 40′ East.
		Beech 18 N. 14° W. 20 links.
		Beech 20 S. 29° E. 11 links.
60	33	Maple 14 in. diam.
79	95	Section corner.
		April 13th, 1850.

North,		*Corrected between sections* 27 *and* 28.
10	50	White Oak 18 in. diam.
27	00	Maple 14 in. diam.
39	95	Set quarter section post.
		Variation 6° 00′ East.
		Beech 18 S. 29° W. 14 links.
		Sugar 15 N. 15° E. 09 links.
50	90	Beech 25 in. diam., North of ledge.
60	00	Variation 6° 50′ East.
79	90	Set post corner of sections 21, 22, 27 and 28.
		Beech 14 S. 29° W. 8 links.
		Black Ash 10 N. 18° E. 4 links.

Township 53 North, Range 15 West, Meridian Michigan.

Chs.	Lks.	
East,		*Random between sections* 22 *and* 27.
		Variation 6° 00′ East.
5	50	Stream 20 links. Course N.W. Good mill site on stream, fall 12 feet.
43	00	Enter tamarack swamp. Course N.W. and S.E.
56	10	Stream 3 links. Course N. W.
80	00	Intersect North and South line at post.
		Land, except swamp, level, second rate sandy soil; Timber, Beech, Sugar, Maple, Oak, White and Black Ash, &c.

West,		*Corrected between sections* 22 *and* 27.
21	00	Cedar 18 in. diam.
40	00	Set quarter section post.
		Variation 5° 50′ East.
		Beech 10 N. 80° E. 08 links.
		White Oak 5 S. 72° W. 14 links.
53	20	Maple 8 in. diam.
67	30	Black Oak 14 in. diam.
80	00	Section corner.

North,		*Corrected between sections* 21 *and* 22.
18	00	Cedar 30 in diam.
30	75	Cedar 15 in. diam.
39	95	Set quarter section post.
		Variation 5° 00′ East.
		Cedar 12 N. 34° E. 20 links.
		Cedar 14 S. 80° W. 8 links.
60	00	Tamarack 19 in. diam.
79	90	Corner of sections 15, 16, 21 and 22.

Chs.	Lks.	
N. 10′ E.		*True line between sections* 15 *and* 16.
		Variation 5° East.
10	70	Indian trail. Course East and West.
20	16	Beech 15 in. diam.
39	90	Intersect S.W. line of John Mullet's claim, and set post.
		Variation 5° East.
		White Oak 15 S. 29° E. 10 links.
		Beech 18 N. 40° W. 08 links.
		Measured S. 45° E. along S.W. line of Mullett's claim 28 chains, to S. E. corner thereof.
		Land gently rolling, and first rate; Timber Beech, Sugar, and Lynn.

North,		*Random between sections* 16 *and* 17.
		Variation 4° 50′ East.
11	50	Enter cultivated fields. Course East and West.
16	50	Wagon road from saw mill in Indian Reservation to Union.
37	50	Leave cultivated fields. Course East and West.
43	25	Indian trail. Course W.N.W. and E.S.E.
55	00	River road. Course E.N.E and W.S.W.
60	00	Descend 20 feet to river bottoms. Course East and West.
73	00	Intersect left bank of Salmon river.
		Variation 4° East.
80	00	Corner of sections 8, 9, 16 and 17, in river.

Chs.	Lks.	
North,		*Random between sections* 8 *and* 9.
3	00	Over river, set temporary post. Land ascending N.W. from river. Variation 4° 00′ East.
20	50	Variation 4° 10′ East.
37	50	Road, course East and West, from ferry to iron furnace in section 6.
43	00	Foot path, course N.W. and S.E. at foot of hill.
45	00	Intersect right bank of salmon river, course N.W. and S. E.
49	50	Over channel of river, to Island.
61	80	Over Island.
66	80	Over channel of river, to right bank.
71	75	Ascend 30 feet.
77	25	Top of river bluffs 100 feet. Course East and West.
80	00	Set temporary post corner of sections 4, 5, 8 and 9.
		Land uneven and broken, second rate; Timber, Beech, Birch, Maple, &c. April 15th, 1850.

Chs.	Lks.	
North,		*Random between sections 4 and 5.*
		Variation 3° 00′ East.
20	00	Variation 2° 50′ East.
39	00	Descend 50 feet, to wet marsh.
46	00	Intersect lake, course N.E. and S.W. Measured South on line 6 chains; thence offset West 10 chains; thence North 15 chains; thence offset East 10 chains, into line.
55	00	Over lake, and ascend granite ledge, 50 feet perpendicular.
60	00	Variation 6° 00′ East.
67	00	Summit of granite hill 150 feet.
73	00	Descend 30 feet.
75	00	Descend, to North boundary.
78	00	Intersect North boundary 36 links West of post.
		Land, South of lake, nearly level, second rate; Timber, Beech, Sugar, &c. North of lake hilly, rocky, and third rate; Timber, Fir, Spruce, Balsam, &c.

Chs.	Lks.	
S. 5' W.		*Corrected between sections 4 and 5.* Variation 7° 00' East. Birch 8 S. 10° E. 11 links. Balsam 11 S. 15° W. 10 links.
20	00	Birch 15 in. diam.
38	00	Set quarter section post. Variation 4° 00' East. Beech 10 S. 20° W. 18 links. Cedar 5 N. 80° E. 14 links.
65	00	Birch 15 in. diam. at foot of hill to the S.W.
78	00	Set post corner of sections 4, 5, 8 and 9. Cedar 10 S. 80° E. 15 links. Birch 11 N. 60° W. 10 links.

Township 58 North, Range 15 West, Meridian Michigan.

Chs.	Lks.	
East,		*Random between sections 4 and 9.* Variation, 3° East.
20	00	Variation, 3° 10′ East.
31	00	Descend river bluffs 150 feet.
40	00	Foot of bluffs. Variation 3° 00′ East.
42	00	Descend again 50 feet.
45	00	Foot of descent.
51	00	Intersect right bank of Salmon river. Course N.E. and S.W.
59	50	Over river to left bank.
63	00	River road. Course N.E. and S.W.
69	50	Leave river bottoms, course N.N.E. and S.S.W. and ascend 15 feet.
80	00	Set temporary post, corner of sections, 3, 4, 9 and 10.
		Land, West of river, rolling and second rate; Timber, Beech, Sugar, Birch, Oak, &c. East of river, rolling, second rate; Timber, Oak, Maple, &c.

East,		*Continued Random between sections* 3 & 10. Variation 4° 00′ East.
40	00	Set temporary post. Variation 4° 50′ East.
79	80	Intersect North and South line 24 links North of post.
		Land rolling; second rate. Timber, Oak, Maple, Beech, Ironwood, &c.

Chs.	Lks.	
N.89°55'W.		*Corrected between sections* 3 *and* **10.**
25	00	Maple 20 in. diam.
39	95	Set quarter section post. White Oak 10 N. 25° E. 18 links. Beech 14 S. 80° W. 04 links.
60	00	Ironwood 18 in. diam.
79	90	Set post corner of sections 3, 4, 9 and 10. Beech 10 S. 80° E. 11 links. Black Oak 15 N. 29° W. 36 links.

North,		*Random between sections* 3 *and* 4. Variation 4° 00' East.
20	00	Descend 15 feet to river bottoms, course E.N.E. and S.W.—rich meadow land.
23	50	River road, course E.N.E. and W.S.W.
28	40	Intersect left bank of Salmon river, course West.
38	25	Over river, and begin to ascend river bluffs.
51	00	Top of bluffs 150 feet.
78	75	Intersect North boundary 28 links East of post. Land south of river, except bottoms, rolling, second rate; Timber, Oak, Maple, &c. North of river bluffs, high level plateau; soil second rate, sandy; Timber, Sugar, Beech, Birch, &c. April 16th, 1850.

	Chs.	Lks.	
S.	10′ E.		*Corrected between sections* 3 and 4. Variation 3° 00′ East.
			Sugar 10 S. 14° W. 11 links.
			Sugar 9 S. 28° E. 15 links.
	15	00	Beech 15 in. diam.
	30	00	Birch 11 in. diam.
	38	75	Set quarter section post on South slope of river bluffs.
			Birch 11 N. 11° W. 18 links.
			Beech 15 S. 20° E. 10 links.
	40	50	Intersect right bank of Salmon river, and set meander post.
			Beech 10 N. 21° East, 2 links.
			Beech 15 S. 80° W. 5 links.
	50	35	Over river, and set meander post on left bank, in river bottoms; no trees; raised a mound of earth and sod around it.
	65	00	White Oak 10 in. diam.
	78	75	Section corner.

Chs.	Lks.	
S. 8′ W.		*True line between sections* 9 *and* **10.**
		Variation 4° 00′ East.
12	00	Maple 10 in. diam.
20	00	Intersect North East line of Lucius Lyon's Claim, 28.25 links from upper or North West corner.
		Black Oak 10 S. 80° E. 15 links.
		White Oak 8 N. 50° W. 10 links.
		Variation 4° 10′ East.
		Land, rolling, second rate; Timber, Oak, Maple, Ironwood, &c.

N. 89° 55′ W		*Corrected between sections* 4 *and* 9.
8	00	Maple 10 in. diam.
20	00	Intersect left bank of Salmon River, at the upper corner of Lucius Lyon's Claim, in river bottoms. Set meander corner, and raised a mound of earth and sod around it.
28	90	Over river, and set meander post on right bank.
		Beech 10 N. 40° W. 18 links.
		Elm 15 S. 80° W. 10 links.
39	95	Set quarter section post.
		Variation 3° 00′ East.
		Birch 11 N. 28° W. 10 links.
		Birch 19 S. 24° E. 18 links.
50	00	Sugar 18 in. diam.
60	00	Variation, 3° 10′ East.
72	00	Beech 40 in. diam.
79	90	Section Corner.

Chs.	Lks.	
S. 5' W.		*Corrected between sections* 8 *and* 9.
13	20	Intersect right bank of Salmon River, and set meander post.
		Birch 10 N. 20° E. 8 links.
		Birch 8 S. 80° W. 21 links.
18	20	Over Channel of river to Island, and set meander post.
		Beech 10 S. 80° E. 18 links.
		Beech 5 S. 25° W. 08 links .
30	50	Over Island, and set meander post.
		Sugar 10 N. 10° E. 04 links.
		Sugar 4 N. 25° W. 02 links.
35	00	Over Channel of River, and set meander post on right bank.
		Beech 25 N. 80° W. 10 links.
		Birch 10 S. 10° E. 8 links.
40	00	Set quarter section post.
		Birch 29 S. 29° W. 10 links.
		Maple 30 N. 40° E. 15 links.
50	00	Beech 40 in. diam.
63	80	Beech 25 in. diam.
77	00	Intersect right bank of Salmon River. Course West, and set meander post.
		Birch 20 N. 80° E. 19 links.
		Fir 20 N. 72 W. 40 links.
80	00	Section corner in river.

Chs.	Lks.	
S. 5′ W.		*Corrected between sections* 16 *and* 17.
7	00	Over river, to left bank, and set meander post in river bottoms, around which raised a mound of earth and sod from pit, eight links due South; thence meandered up stream, into line of sections 9 and 16, as follows.
		S. 86° E. 9,50 links.
		N. 70° E. 10.00
		N. 30° E. 5.00 to line of sections 9 and 16.
21	40	East of section corner and set meander post in river bottoms and raised a mound of earth and sod, from a pit, eight links due East; thence,
East,		*True line between sections* 9 *and* 16.
33	00	From corner of sections 8, 9, 16, and 17 in river, ascend 10 feet and leave river bottoms.
37	25	Intersect S. W. line of John Mullett's claim and set post.
		Beech 10 S. 25° E. 15 links.
		Beech 8 N. 80° W. 10 links.
		Measured N. 45° W. along S. W. line of Mullett's claim, 20 chains 20 links, to S. W. corner, on bank of river.
		Land mostly river bottoms, rich meadow; last four chains, rolling, second rate.
		April, 17th 1850.

Chs.	Lks.	
S. 5′ W.		*Continued ccrection between sections* 16 & 17.
		From post on South bank of river.
24	00	Fron corner of sections 8, 9, 16 and 17 in river. Beech 10 indiam.
40	00	Set quarter section post 2.50 links North of field, no trees; Granite Boulder, three feet high bears S. 40° E. 18 links.
75	00	Beech 24 in. diam.
80	00	Corner of sections 16, 17, 20, and 21.

South,		*Random between sections* 20 *and* 21. Variation, 4° 50′ East.
22	00	Enter cedar swamp. Course N. E. and S. W.
24	50	Stream 30 links. Course West.
54	00	Stream 6 links. Course West.
80	00	Set temporary post corner of sections 20, 21, 28 and 29.
		Land, mostly cedar swamp. North of swamp, gently rolling, second rate; timber, Beech, Sugar, &c.

Chs.	Lks.	
South,		*Random between sections* 28 *and* 29. Variation 5° 00′ East.
31	00	Leave cedar swamp, and enter wet marsh. Course East and West.
42	50	Slough, Course East and West.
45	00	Leave slough, and sluggish stream, 10 links. Course East.
50	50	Leave marsh. Course East and West.
80	00	Set temporary post corner of sections 28, 29, 32 and 33.
		Land South of marsh, level, second rate sandy soil; Timber, Black and White Oak, Beech and Maple, &c.
		Saturday April, 20, 1850.

Chs.	Lks.	
South,		*Random between sections* 32 *and* 33. Variation 5° 00′ East.
40	00	Set temporary post. Variation, 5° 15′ East.
80	06	Intersect South boundary, 71 links East of post. Land, level, second rate, sandy soil; Timber, White and Black Oak, Beech, Maple &c.
N. 10′ E.		*Corrected between sections* 32 *and* 33. Variation 5° 00′ East.
13	40	Beech 18 in. diam.
30	01	Maple 10 in diam.
40	01	Set quarter section post. White Oak 14 N. 40° E. 10 links. White Oak 30 S. 80° W. 05 links.
64	00	Maple 35 in. diam.
80	02	Set post corner of sections 28, 29, 32 and 33. Black Oak 30 N. 40° E. 11 links. Black Oak 15 S. 80° W. 05 links.

Chs.	Lks.	
East,		*Random between sections* 28 *and* 33.
		Variation 5° 00′ East.
40	00	Set temporary post.
		Variation 5° 15′ East.
80	05	Intersect North and South line, 11 links North of post.
		Land, level, second rate; Timber, White and Black Oak, Beech and Maple. No undergrowth.

N. 89° 56′ W		*Corrected between sections* 28 *and* 33.
30	06	Maple 24 in. diam.
40	02½	Set quarter section post.
		White Oak 10 N. 40° E. 20 links.
		White Oak 9 S. 80° W. 11 links.
62	50	Beech 14 in. diam.
80	05	Section corner.
		April 20, 1850.

N. 10′ E.		*Corrected between sections* 28 *and* 29.
22	00	Beech 27 in. diam.
40	01	Set quarter section post in marsh, no trees.
50	00	Cedar 15 in. diam.
71	50	Cedar 28 in. diam.
80	02	Set post corner of sections 20, 21, 28 and 29.
		Cedar 32 N. 32° E. 11 links.
		Cedar 24 S. 40° W. 05 links.

Chs.	Lks.	
East,		*Random between sections* 21 *and* 28. Variation 5° 00′ East.
58	00	Leave Cedar swamp. Course N. E. and S. W.
79	90	Intersect North and South line at post. Land, nearly all Cedar swamp; remainder level, second rate.
West,		*Corrected between sections* 21 *and* 28.
18	00	Beech 25 in. diam.
39	95	Set quarter section post. Variation 5° 50′ East. Cedar, 20 N. 40° E. 08 links. Cedar 25 S. 80° W. 04 links.
58	00	Cedar 19 in. diam.
79	90	Section corner.

Chs.	Lks.	
N. 10′ E.		*Corrected between sections* 20 *and* 21.
19	00	Spruce 18 in. diam.
40	01	Set quarter section post. Variation 5° 00′ East. Cedar 30 N. 80° W. 10 links. Cedar 15 S. 70° E. 08 links.
54	00	Spruce 15 in. diam.
65	00	Beech 21 in. diam.
80	02	Corner of sections 16, 17, 20 and 21. April 22, 1850.

South,		*Random between sections* 19 *and* 20. From post in Indian Reservation.
34	00	Descend 10 feet and enter rich bottom land
40	00	Intersect South line of Indian Reservation. Variation 4° 50′ East.
48	50	Stream 50 links. Course East.
59	00	Bayou 50 links. Course East and West.
80	00	Set temporary post corner of sections 19, 20, 29and 30. Land, North 34 chains, White and Yellow Pine Plains, remainder, river bottoms, rich meadow land.

Township 58 North, Range 15 West, Meridian Michigan.

Chs.	Lks.	
South,		*Random between sections* 29 *and* 30. Variation 4° 55′ East.
2	25	Enter wet land. Course East and West.
45	25	Intersect small lake, course East and West. Offset West 8.00; thence South 8.85; thence East 8.00, into line.
54	10	Over lake, by offset.
80	00	Set temporary post corner of sections 29, 30, 31 and 32.
		Land level and wet, third rate; Timber, Ash, Maple, Oak, &c. North of lake, undergrowth of swamp-bushes of various kinds unknown.

Chs.	Lks.	
South,		*Random between sections* 31 *and* 32.
		Variation 5° 00′ East.
47	00	Stream 10 links wide. Course East.
79	85	Intersect South boundary of township 14 links East of post.
		Land level, third rate; Timber, Maple, Black Ash and Swamp White Oak.
N. 2′ E.		*Corrected between sections* 31 *and* 32.
		Variation 5° 25′ East.
11	00	Maple 19 in. diam.
30	00	Black Ash 17 in. diam.
39	97½	Set quarter section post.
		Variation 5° 50′ East.
		Black Ash 20 N. 45° E. 8 links.
		Black Ash 15 S. 49° W. 7 links.
61	00	Maple 30 in. diam.
79	95	Set post corner of sections 29, 30, 31 and 32.
		Black Ash 16 N. 30° E. 18 links.
		Black Ash 14 N. 28° W. 11 links.
		April 23d, 1850.

Chs.	Lks.	
East,		*Random between sections* 29 *and* 32.
		Variation 5° 00′ East.
23	00	Stream 10 links, course North.
34	00	Enter marsh, course N.W. and S.E.
54	50	Leave marsh, course N.E. and S.W..
79	75	Intersect North and South line, 8 links South of post.
		Land level and wet, third rate; East of marsh, second rate; Timber, Black Ash, Maple and Oak.
S. 29° 57′ W.		*Corrected between sections* 29 *and* 32.
30	00	Beech 10 in. diam.
39	87½	Set quarter section post, in marsh.
		Variation 5° 10′ East.
		Black Ash 13 S. 500 links. No other tree near.
55	00	Maple 12 in. diam.
67	50	Black Oak 25 in. diam.
79	75	Section corner.

Chs.	Lks.	
West,		*Random between sections* 30 *and* 31.
		Variation 5° East.
40	00	Set temporary post.
		Variation 5° East.
76	00	Intersect West boundary 17 links South of post.
		Land level and wet, third rate; Timber, Black Ash, Maple, Oak, &c.

S. 89° 52′ E.		*Corrected between sections* 30 *and* 31.
		Black Oak 20 N. 50° E. 11 links.
		Maple 25 S. 40° E. 18 links.
15	00	Maple 19 in. diam.
36	00	Set quarter section post.
		Maple 30 N. 40° E. 11 links.
		Black Ash 15 S. 29° W. 8 links.
49	00	White Oak 15 in. diam.
71	80	Maple 28 in. diam.
76	00	Section corner.

N. 2′ E.		*Corrected between sections* 29 *and* 30.
20	00	Maple 19 in. diam.
39	97½	Set quarter section post in wet land.
		Variation 5° 00′ East.
		Willow 4 N. 45° E. 176 links. No other tree near.
49	00	Cedar 18 in. diam.
79	95	Set post Corner of sections 19, 20, 29, and 30, in bottoms; no trees; raised a mound of earth and sod, from a pit which bears N. 50 E. 34 links distant.

Chs.	Lks.	
East,		*Random between sections* 20 *and* 29.
		Variation 4° 55′ East.
7	00	Leave bottoms and enter wet land, course N.E. and S.W.
31	00	Leave wet land and enter swamp, course N.W. and S.E.
80	02	Intersect North and South line 20 links South of post.
		Land mostly cedar and spruce swamp and wet land; all except bottoms third rate.

S.89°51′W.		*Corrected between sections* 20 *and* 29.
8	00	Cedar 18 in. diam.
29	00	Spruce 14 in. diam.
40	01	Set quarter section post.
		Variation 5° 10′ East.
		Spruce 4 N. 29° W. 8 links.
		Cedar 9 S. 81° E. 11 links.
60	00	Black Ash 14 in. diam.
80	02	Section corner.

April 24th, 1850.

Chs.	Lks.	
West,		*True Line between sections* 19 *and* 30. Variation 4° 55′ East.
18	00	Intersect lake, and set meander post in bottom land. Variation 4° East.
		Black Ash 13 S. 23° W. 367 links. No other tree near.
		A tree on East end of island bears N. 80° W.
54	80	Over lake trigonomotrically, and set meander post on S.E. side of island.
		Beech 18 N. 31° W. 9 links.
		Beech 14 S. 80° W. 4 links.
55	30	Top of ascent, 30 feet; line runs along top of bank.
62	00	Descend 30 feet to lake.
64	00	Set meander post on West side of island.
		Becch 15 N. 20° E. 11 links. No other tree near.
		Land, East side of lake, rich meadow bottoms; island, high, rolling, second rate; banks high all around it.

N. 2′ E.		*Corrected between sections* 19 *and* 20.
21	00	Bayou 50 links wide. Course East and West.
31	50	Stream 50 links wide. Course East.
40	00	Intersect South line of Indian Reservation, 20 chains from S. W. corner, and set post in bottoms.
		White Pine 26 N, 57° W. 12.30 links.
		Yellow Pine 16 N. 1° E. 9.50 links.

Township 58 North, Range 15 West, Meridian Michigan.

Chs.	Lks.	
North,		*Random between sections* 17 *and* 18.
		Variation 3° 45′ East.
13	00	Descend bank, 20 feet.
20	00	Stream 50 links. Course West,
37	00	In Indian village.
43	00	River road. Course nearly East and West.
50	57	Intersect left bank of Salmon river.
		Variation 3° 30′ East.
		Object on opposite side of river bears North; measured East 5 chains 67 links, and same object bears N. 31° W.
60	00	Over river trigonometrically, and set temporary post. Begin to ascend.
74	50	Top of ridge, 60 feet. Course N.N.E.
80	00	Set temporary post on summit of ridge, corner of sections 7, 8, 17 and 18.
		Land, North of Salmon river, hilly, rocky, and third rate. Timber, Birch, Aspen, Beech and Oak.
		April 25, 1850.

Township 53 North, Range 15 West, Meridian Michigan.

Chs.	Lks.	
North,		*Random between sections 7 and 8.*
		Variation 3° 00′ East.
		Descend from post.
5	00	Foot of ridge.
7	25	Begin to ascend another ridge.
21	00	Summit of Rocky ridge, 100 feet, extends East about 5 chains, and then descends to stream.
22	00	Variation 2° 50′ East.
26	00	Descend ridge.
42	00	Foot of ridge, and enter swamp, course East and West.
45	00	Stream, 30 links. Course East—rapid and clear.
48	00	Road from ferry in section 9 to furnace in section 6. Line runs along West slope mountain 700 feet high.
54	00	Variation 1° East.
64	00	Variation 1° West.
72	50	Variation 1° 15′ West.
80	00	Set temporary post corner of sections 5, 6, 7 and 8.
		Land hilly and rocky, third rate; Timber, Beech, White Pine, Balsam, &c.

Township 53 North, Range 15 West, Meridian Michigan.

Chs.	Lks.	
North,		*Random between sections* 5 *and* 6.
		Variation 1° West.
		Descend from corner.
7	00	Variation 4° West.
14	00	Variation 10° West.
20	00	Stream 5 links, in ravine. Course West.
21	00	Variation, 10° East.
26	00	Foot path, East and West, on South side of trap knob.
28	00	Variation 30° West.
33	00	Top of trap knob, 50 feet.
		Variation 50° East.
		Falls in stream about 20 chains West. Spar vein and copper diggings near falls.
38	00	Descend trap knob.
40	00	Variation 10° West.
43	00	Variation 7° West.
45	00	The North end of the needle points S. 50° West.
47	50	Stream 20 links. Course West—rapid.
48	00	Ascend steep bank 20 feet, and from top ascend gradually.
		Variation 30° East.
60	00	Variation 15° East.
61	50	Top 50 feet, and ascend again.
70	25	Summit of hill, 70 feet.
72	50	Descend to North boundary.
77	50	Intersect North boundary 138 links West of post.
		Land hilly and broken, third rate; Timber, White Birch, Aspen, White Pine, Balsam, &c.

Township 53 North, Range 15 West, Meridian Michigan.

Chs.	Lks..	
S. 20′ W.		*Corrected between sections* 5 *and* 6.
		Variation 9° East.
		Aspen 8 S. 40° E. 10 links.
		Birch 10 S. 70° W. 5 links.
10	00	Balsam 10 in. diam.
30	00	Cedar 29 in. diam.
37	50	Set quarter section post.
		White Pine 10 S. 80° E. 8 links.
		White Pine 11 N. 70° W. 14 links.
61	00	Birch 20 in. diam.
77	50	Set post corner of sections 5, 6, 7 and 8.
		Birch 10 N. 40° E. 10 links.
		Sugar 19 S. 80° W. 5 links.

Chs.	Lks.	
East,		*Random between sections* 5 *and* 8.
		Ascend slightly along N.W. side of hill.
		Variation 1° West.
5	00	Variation 1° 15′ West.
13	00	Variation 30′ West.
18	50	Spring—outlet N.W. in ravine.
		Variation 1° East.
20	00	Variation 2° East.
25	00	Top of hill, 150 feet.
50	00	Begin to descend gradually.
60	00	Variation 3° 50′ East.
75	00	Foot of hill. Foot path, course North and South.
80	50	Intersect North and South line at post.
		Land hilly, third rate ; Timber, Birch, Aspen, White Pine and Oak.
		April 26th, 1850.

West,		*Corrected between sections* 5 *and* 8.
21	00	White Birch 10 in. diam.
32	50	Aspen 13 in. diam.
40	25	Set quarter section post.
		Variation, 2° 10′ East.
		Aspen 14 N. 31° W. 9 links.
		Beech 19 S. 21° W. 15 links.
47	00	Sugar Maple 25 in. diam.
60	00	Cedar 21 in. diam.
80	50	Section corner.

Township 53 North, Range 15 West, Meridian Michigan.

Chs.	Lks.	
West,		*Random between sections 6 and 7.*
		Descend from post on N.W. side of hill.
		Variation 1° West.
7	50	Variation 3° West.
16	00	Variation 7° West.
23	00	Road, course North and South, at foot of hill.
28	00	Stream, 25 links, course S.W.
		Variation 10° West.
		Ascend from right bank of stream N.W. Line along southern declivity of iron ridge.
34	50	Variation, 30° West.
37	00	Variation 20° West.
44	50	No variation.
46	50	Variation 15′ East.
52	50	Stream, 3 links, course S.E., and ascend.
		Variation 1° East.
60	00	Top of knob. Variation 5° East.
67	00	Descend knob to West boundary.
74	95	Intersect west boundary, 33 links South of post.
		Land broken and hilly, third rate; Timber, Birch, Aspen, Sugar Maple, Black Oak, Cedar, &c.

Chs.	Lks.	
S.89° 45′ E.		*Corrected between sections 6 and 7.*
		Variation 10° East.
		White Birch 15 N. 40° E. 8 links.
		Ditto 9 S. 21° E. 14 links.
20	00	Cedar 20 in. diam.
34	95	Set quarter section post.
		Variation 5° West.
		White Cedar 15 S. 80° E. 10 links.
		White Birch 19 N. 71° W. 15 links.
50	00	White Cedar 8 in. diam.
71	00	Sugar Maple 19 in. diam.
74	95	Section corner.

S. 20′ W.		*Corrected between sections 7 and 8.*
8	00	Maple 21 in. diam.
29	00	Beech 18 in. diam.
40	00	Set quarter section post.
		Variation 2° East.
		Birch 30 N. 47° W. 10 links.
		Maple 19 S. 50° E. 9 links.
60	00	Hemlock 10 in. diam. top of ridge.
73	00	Sugar 15 in. diam. in valley.
80	00	Set post corner of sections 7, 8, 17 and 18.
		Sugar 15 N. 40° E. 19 links.
		Hemlock 19 S. 29° W. 45 links.

Chs.	Lks.	
East,		*True line between sections* 8 *and* 17. Variation 3° East.
3	00	Descend ridge.
9	00	Foot of ridge. Stream 35 links; course South—rapid.
18	00	Sugar 19 in. diam.
		Line along S.W. side of mountain, descending to river.
25	00	Intersect right bank of Salmon river, and set meander post.
		Beech 20 N. 40° E. 8 links.
		Beech 10 S. 80° W. 9 links.
		Land hilly, third rate; Timber, Beech, Birch, Maple, &c.
		April 27th, 1850.

Chs.	Lks.	
West,		*Random between sections* 7 *and* 18.
		Variation 3° **East.**
		Descend from post.
4	50	Foot of ridge. Valley, course N.E.
6	00	Begin to ascend.
14	00	Top of ridge. Course N.E.
20	00	Variation 2° 15′ East.
22	00	Begin to descend.
34	00	Foot of ridge. Valley, course N. E.
		Summit of a hill North of line about 20 chains; line runs in valley.
75	00	Intersect west boundary at post in valley.
		Last 40 chains nearly level; remainder hilly, third rate; Timber, Beech, Sugar, Birch, Maple, &c.

East,		*Corrected between sections* 7 *and* 18.
		Variation 3° **East.**
		Beech 10 N. 40° E. 11 links.
		Maple 19 S. 30° W. 14 links.
11	00	Maple 21 in. diam.
29	00	Beech 14 in. diam.
35	00	Set quarter section post.
		Variation 2° **East.**
		Birch 14 N. 36° W. 18 links.
		Birch 10 S. 29° E. 14 links.
51	00	Beech 18 in. diam.
64	00	Sugar 29 in. diam.
75	00	Section corner.

Chs.	Lks.	
S. 20′ W.		*Corrected between sections* 17 *and* 18.
11	50	Sugar 19 in. diam.
20	00	Set meander post on right bank of Salmon river.
		Sugar 21 N. 39° W. 10 links.
		Sugar 15 West, 11 links.
		Monday, April 29th, 1850.

* * *

NOTE.—If any abbreviations other than those mentioned in Article 6, on Page 32 of these Instructions, are made, they should be in all cases explained in a Note at the end of your Book, signed by you, and must be uniform, thus: T. for Township, R. for Range, Var. for Variation, Rand. for Random, Corr. for Corrected or Correction, Sec. for Section, Secs. for Sections, Btwn. for Between. All the timber may be designated by the initials for the color, and the trees should be written in full; as, W. Ash for White Ash, Y. Pine for Yellow Pine, "Sugar" for Sugar Maple, "Maple" for Soft Maple, W. Pine for White Pine, &c.

MEANDERS.

Meanders of left bank of Salmon River, beginning at post, on North boundary of Township, in Section three, thence down stream.

Courses.	C. L.	Variation 5° East.
S. 30° W.	10.00	Meadow bottoms, along river, from 15 to 20 chains wide; banks 6 to 10 feet high.
S. 40° W.	5.00	
S. 50° W.	5.00	
S. 65° W.	5.00	
S. 40° W.	7.00	
S. 70° W.	6.00	
S. 30° W.	7.00	To mouth of stream, 150 links wide from South East.
South,	1.50	Over stream; about 10 chains up this stream, is a bridge, over which the river road passes.
S. 70° W.	5.00	
S. 40° W.	10.00	
S. 65° W.	15.00	
S. 80° W.	20.75	To post, in line between sections 3 and 4.
		Variation 4° East.
S. 80° W.	5.00	In section 4.
S. 60° W.	10.00	
S. 10° W.	15.00	
S. 27½° W.	8.50	To post, in line between sections 4 and 9, and at upper corner of L. Lyon's claim.
		Variation 4° 10′ East.

Township 58 North, Range 15 West, Meridian Michigan.

Courses.	C. L.	
		From lower corner of J. Mullett's claim in section 9. Variation 4° 00′ East.
S. 20° W.	5.00	
South,	9.75	To post in line between sections 9 and 16. Variation, 4° East.
S. 30° W.	5.00	In section 16.
S. 70° W.	10.00	
N.86° W.	9.50	To post in line, between sections 16 and 17 Variation, 4° East.
West,	20.00	In section 17, to post, at N. E. corner of Indian Reservation. Variation, 4° East.
		From post, North West corner of Indian Reservation, at mouth of stream, from S. E. on left bank of River; thence in section 18. Variation, 3° 15′ East.
N.75° W.	10.00	Sand bank, from 10 to 25 feet high, along bank of river.
N. 80° W.	5.00	
N. 70° W.	10.00	
N. 80° W.	15.00	
S. 70° W.	10.00	
West.	7.00	To post on West boundary of township. Variation 4° 00′ East.

Township 58 North, Range 15 West, Meridian Michigan.

Meanders of the Right Bank of Salmon River, beginning at post on West boundary of township in section 18, *thence up stream.*

Courses.	C. L.	Variation, 3° East.
East,	8.00	Along foot of Ledge of Rocks, from 30 to 50 feet, perpendicular.
N. 70° E.	10.00	Ditto.
East.	5.00	"
S. 50° E.	5.00	"
N. 70° E.	15.00	"
S. 80° E.	15.00	To marble bed, on bank of river. Variation, 2° East.
N. 70° E.	10.00	
S. 30° E.	3.00	
S. 80° E.	5.00	
N. 60° E.	5.00	Leave marble bed, at post in line between sections 17 and 18. Variation, 3° East.

N. 42° E.	13.50	In section 17.
N. 50° E.	10.00	At 3 chains, stream 50 links from North.
N. 70° E.	10.00	To post, in line between sections 8 and 17. Variation, 3° East.

N. 60° E.	14.00	In section 8, along foot of high mountain; summit about 40 chains north 1000 feet high. Banks of river 10 feet high.
S. 70° E.	8.00	
S. 80° E.	20.00	
N. 85° E.	20.00	To post, in line between sections 8 and 9. Variation, 4° East.

Township 53 North, Range 15 West, Meridian Michigan.

Courses.	C. L.	
S. 80° E.	7.00	In section 9, bank of river 10 feet high.
N. 70° E.	6.00	
N. 5° E.	12.50	Banks 8 feet high.
N. 15° E.	10.00	River 9 chains wide.
N. 45° W.	15.00	Ferry to Union, on opposite side.
N. 35° W.	10.00	To post in line between sections 8 and 9, N. 55½' E. to south point of Island. Variation, 4° 50' East.

N. 50° W.	3.50	In section 8; river rapid; narrow, channel between, main land and Island
N. 20° W.	10.00	
N. 23° E.	7.00	
N. 40° E.	5.00	To line between sections 8 and 9. S. 64½° E. to head of Island. Variation, 3° 10' East.

N. 68° E.	7.75	In section 9; River bluffs, rising gradually North; River rapid; River 3 chains wide.
S. 80° E.	8.00	
S. 60° E.	7.00	
S. 65° E.	5.00	To falls 15 feet.
N. 70° E.	2.00	River rapid.
S. 60° E.	5.00	
N. 65° E.	5.00	Leave Rapids.
N. 70° E.	10.00	
N. 50° E.	5.00	
N. 15° E.	10.00	To post in line between sections 4 and 9. Variation 3° 15' East.

Conrses.	C. L.	
N. 27½° E.	9.25	In section 4
N. 12° E.	18.00	
N. 50° E.	15.00	
N. 75° E.	10.00	To post in line, between sections 3 and 4. Variation, 3° 50′ East.

N. 82° E.	20.20	In section 3.
N. 70.° E.	10.00	
N. 45° E.	5.00	
N. 60° E.	10.00	
N. 30° E.	7.00	
N. 70° E.	7.00	
N. 40° E.	6.00	
N. 55° E.	10.00	
N. 35° E.	10.00	To post on N. boundary of township.

April 30th, 1850.

Meanders of Island, in river, opposite Union, beginning at post in line between sections 8 *and* 9, *on north side of Island ; thence.*

S. 70° W.	0.80	In section 9. Variation, 4° East.
S. 30° W.	4.00	
S. 15° E.	5.00	
S. 10° E.	3.00	
S. 50° E.	1.20	To post on line South side of Island

Township 58 North, Range 15 West, Meridian Michigan.

Courses.	C. L.	
S. 50° E.	3.80	In section 8.
N. 30° E.	3.00	
North,	5.00	
N. 15° E.	5.00	
N. 16° E.	4.50	At 2 chains, bridge from Island to Union.
S. 80° W.	5.00	
S. 70° W.	2.20	To place of beginning.

Meanders of Lake in Section 28, *beginning at a point* 23 *chains North of corner to sections* 28, 29, 32 *and* 33 ; *thence*

East,	10.00	To Lake ; thence
N. 50° E.	5.00	
N. 20° W.	10.00	At 5 chains, enter wet marsh.
N. 60° E.	10.00	At 1 chain, sluggish stream, 20 links, from West.
S. 60° E.	15.00	At 2 chains, leave wet marsh and enter swamp.
N. 80° E.	10.00	Leave swamp.
S. 50° E.	5.00	
S. 30° W.	10.00	
S. 20° E.	5.00	
S. 60° W.	10.00	
S. 80° W.	10.00	
S. 10° E.	5.00	
N. 70° W.	10.00	
N. 23° E.	14.50	To place of beginning.

Township 53 North, Range 15 West, Meridian Michigan.

Meanders of part of a Lake in Sections 19 *and* 30, *beginning at post on West boundary, on North side of Lake; thence*

Courses.	C. L.	
East,	20.00	In section 19, sandy beach.
N. 50° E.	5.00	
S. 80° E.	5.00	
S. 40° E.	10.00	At 5 chains enter rich bottom land, wet.
S. 20° E.	5.00	Tree on East end of Island bears S. 32° W.
N. 80° E.	5.00	
N. 30° E.	10.00	
S. 50° E.	3.50	Outlet 50 links wide, and leave sandy beach.
S. 31° E.	3.50	
S. 10° W.	10.00	
S. 40° E.	10.00	
S. 10° E.	6.50	To post in line between sections 19 and 30. Tree, before noted, on East end of Island, bears N. 80° W. Variation 4° East.

S. 33° W.	9.25	In section 30.
N. 80° W.	10.00	
S. 30° W.	10.00	
N. 70° W.	5.00	
S. 60° W.	10.00	
S. 80° W.	15.00	West side of Island bears N. 2° East.
N. 70° W.	10.00	To post on West boundary, South side of Lake.

Township 53 North, Range 15 West, Meridian. Michigan

Meanders of Island in Lake in Sections 19 *and* 30, *beginning at post in line of Sections* 19 *and* 30, *on East side of Island ; thence*

Variation 4 °East.

Courses.	C. L.	
N. 30° E.	4.00	In Section 19.
S. 80° E.	3.00	
N. 60° E.	3.00	
N. 10° E.	2.00	
N. 60° W.	8.00	
West,	6.00	
S. 50° W.	7.00	
S. 10° E.	6.00	To post, in line between sections 19 and 30, on West side of Island.

S. 55° E.	5.00	In section 30.
N. 60° E.	5.80	To place of beginning.

Wednesday, May 1st, 1850.

GENERAL DESCRIPTION.

The surface of this township, is unequal; the Eastern and South-eastern portion, being gently rolling; the South-western level, and that portion lying North-west of Salmon River broken, hilly, and rocky. The soil is also varied. The largest portion of the Township south of Salmon River, is sandy second, and third rate, with a variety of timber, such as Beech, Maple, Ironwood, Oak, Birch, Sugar, &c. The South-eastern portion of the Township is a better quality of soil, being mostly first rate, and changing from sand to a clay loam. The timber is principally Sugar Maple, which grows in groves of large extent, affording sugar in great abundance, to the Indians, whose sugar camps are established in many places in this vicinity, one of which was noted in section twenty-four. Beech, Lynn, Elm, Black Walnut, Hickory, and other varieties of valuable timber are also found in this portion of the township.

A small portion of a beautiful rolling prairie, covers the south-east corner of this township, in which is noted a grove of timber on the line between sections 35 and 36.

The plains in sections 18 and 19, extending, also, into the Indian Reservation, are elevated from the river and country around; but the soil is dry, barren and sandy, supporting a scattering growth of stunted White and Yellow Pines, which are of no value.

Following the course of Salmon river and the large streams, is a level strip of bottom land, which is covered with wild grass of the first quality. The soil is sandy loam, and very rich in the Western part of the township. Along the stream which flows from a lake in sections 19 and 30, into Salmon River, the bottoms are low and wet, caused by inundations which occur two or three times during the year.

The large Swamp in the interior of the Township is heavily timbered with Cedar, Tamarack and Spruce. East of the line between sections 20 and 21, it is dry, and capable of drainage, and may be made valuable for agricultural purposes.

Limestone appears at the surface on the line between sections 27 and 28, where the variation of the needle is somewhat increased. The course of this ledge is nearly East and West, and the outcrop continues for nearly 30 chains easterly, to the junction of two small streams, where it disappears from the surface. It is seen again in the bed of the stream, at the falls, on line between sections 22 and 27. This stone makes excellent lime. A kiln for burning it is situated at the junction of the streams before mentioned.

A regular bluff, rising gradually from Salmon river to from 100 to 150 feet in height, continues from the rapids below the falls, in section 9, along the North side of the river, to the North boundary. From the top of these bluffs, a level plateau of land extends westerly, covering several square miles.

A large bed of marble has been discovered on the right bank of Salmon River, in section 18. This marble is variegated, and an excellent quality for building purposes; capable of receiving a very high polish.

The variation of the needle, South of Salmon River, is nearly uniform. A decrease, however, in the East variation, is observed as you go West, and in some places it decreases to about 3½° East.

North of Salmon River, in the mountainous parts of the township, the variation is more fluctuating. On the line between sections 6 and 7, it increases, going West, from 1° West at the corner of sections 5, 6, 7 and 8, to 30° West, and then diminishes to no variation; from which point the East variation increases, till at the West boundary it is 10° East.

A high ridge North of the line, containing iron ore, is probably the cause of these abberrations of the needle. An iron furnace is erected, and a company at work upon this ore bed. There is a good road leading from the furnace to Salmon River, opposite Union.

The variation on the line between sections 5 and 6, is still more irregular. It changes abruptly at several points on the line, from East to West, and on the North side of the trap knob, noted on this line, the North end of the needle points S. 50° W. This unusual attraction is attributed to the presence of copper—a spar vein, containing grains and small lumps of native copper, being exposed on the western declivity of the trap knob before mentioned, at which point a shaft has been sunk, and diggings commenced, but not yet far enough advanced to determine the extent or value of the mine.